An Address
ON
THE CELLULAR PATHOLOGY OF TO-DAY.

Delivered in the Grande Salle of the Sorbonne, Paris, to the Thirteenth International Medical Congress, August 6th, 1900,

BY SIR J. BURDON-SANDERSON, BART., M.D., F.R.C.P., F.R.S.,
REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD.

GENTLEMEN,—May I be permitted first of all to express to you my high appreciation of the honour you have conferred on me by inviting me to address you on so important an occasion. I desire at the same time to thank our French colleagues on my own behalf and on that of the English members of the Congress for their friendly welcome.

Forty-seven years ago, after graduating in Edinburgh, I repaired to Paris for the purpose of completing my medical education. At that time Paris afforded facilities for clinical study which were not to be had in England. To myself it was an additional inducement that there were in Paris well-organised laboratories for practical instruction in chemistry, histology, and physiology. Moreover, the period was one of great activity and progress. Claude Bernard had recently achieved his greatest discoveries, those relating to the functions of the liver, the pancreas, and the processes of digestion. Brown-Séquard had just demonstrated the functions of the vaso-motor nerves and was already engaged in his investigations of the functions of the spinal cord. It was to Paris that every student repaired who desired to become acquainted with the most recent advances in physiology.[1]

The progress of pathology at the time we are considering was no less remarkable than that of physiology. It was then that the "cellular pathology"—the doctrine which has so powerfully influenced the progress of scientific medicine—was originated by Virchow. Nearly 20 years had elapsed since the discoveries of Schwann and the promulgation of the "doctrine of the cell." The science of histology had been developed by Charles Robin in France, by Bowman in England, by Henle and above all by Kölliker in Germany. Of these remarkable men one only is still with us. To Kölliker we can to-day address our congratulations on a life-work of unparalleled fruitfulness. It was from Kölliker's university, Würzburg, that the "cellular pathology" emanated. The book which bore this title was not published until Virchow had migrated to Berlin (in 1856), but since 1847, when the first volume of the "Archiv" appeared, the doctrine had been step by step set forth. A few years later (1862) von Recklinghausen made the capital discovery that the colourless corpuscle of the blood was not, as had been previously thought, a vesicle containing a nucleus, but rather an organism full of life and movement which possessed the wonderful faculty of incorporating minute particles suspended in its liquid environment. Five years later (1867) another pupil of Virchow, Cohnheim, made the further discovery that pus can be formed by the emigration from the blood-vessels of these same corpuscles, but it was not until after Cohnheim's death that the key to the mystery which he had in vain sought to penetrate was discovered by Leber[2] in the analogy of the phenomenon in question to that to which the botanist Pfeffer had given the name of "chemotropism."

I have adverted to these discoveries relating to the functions of the cell for the purpose of setting forth the relations between the cellular pathology of to-day and the cellular pathology as originated by Virchow in the "fifties." There can be no doubt that the tendency of pathological research has undergone a marked change since that time. Formerly the histological characters of morbid processes—of inflammation, of tuberculosis, and of other organic diseases—were the subjects of special interest. Now it is the microbe. It would, however, be a mistake to suppose that the new science of microbiology has hindered the progress of histology. On the contrary, histological research has never been pursued with more zeal and success than during what may be called the bacteriological period (1880 to the present time). I need only refer to the discovery of karyokinesis (1873–82) and to the wonderful advances in the microscopical study of the nervous system which we owe to Golgi, to Cajal, and to the army of artists in histology who are now working in the same field.

There are at the present moment few who doubt the value of bacteriological diagnosis or of serum therapeutics. These are the practical, life-saving results of bacteriological research. But it is not in these directions that microbiology is at present exercising its chief influence on the science of medicine; it is rather that it has given us a new and more comprehensive idea of the physiological functions of the cell and consequently of cellular pathology. Pathology is no less fundamentally cellular than it was when Virchow so designated it in the title of his book. But the word "cellular" has now a wider signification, for it comprises not merely histological changes, but the chemical reactions which subsist between the cell and its environment. Formerly we regarded each kind of cell as having a single special function proper to itself, but the progress of investigation has taught us that each species of cell possesses a great variety of chemical functions and that it may act on the medium which it inhabits and be acted upon by it in a variety of ways. Thus, for example, we think of the colourless corpuscles of the blood (or, as we now call them, leucocytes) not merely as agents in the process of suppuration or as typical examples of contractile protoplasm, but rather as living structures possessing chemical functions indispensable to the life of the organism. Similarly we have come to regard the blood disc, which formerly we thought of merely as a carrier of hæmoglobin, as a living cell possessed of chemical susceptibilities which render it the most delicate reagent we can employ for the detection of abnormal conditions in the blood.

The tendency of recent research is to show that the reactions to which I have referred as chemical functions of the cell (action of the cell on its environment—action of the environment on the cell) are the work of ferments—intrinsic or extrinsic—which are products of the evolution of the living cell and therefore to which we may apply the term "enzymes"[3] devised for them by the great physiologist whose loss we at this moment so bitterly deplore. Can we go a step further and accept the suggestion which presents itself that *all* the functions of the cell are due to the agency of enzymes? The question is one which we are bound to answer with great reserve. The utmost that can be said is, that if we exclude from consideration the functions which Bichat designated as functions of animal life—in other words, the functions proper to the nervous system and under its immediate control—we may as regards organic functions accept the suggestion as probably true. Recent researches have plainly indicated that in the case of the disease-producing micro-organisms, the specific functions which for years we regarded as proper to, and inseparable from the cell, belong essentially to the enzymes which they contain. It has been further shown that similar statements can be made as regards ferment-processes which differ widely from each other and no less widely from those induced by bacteria. Thus, if I may be allowed to quote the striking language employed by M. Duclaux[4]: "There are ferments which by slipping a molecule of water into the midst of a complex molecule divide it into two or three more simple ones, as an iron wedge splits a block of wood, and others which can reconstitute the block by re-uniting its dissociated elements. Again, there are enzymes which conduct oxygen to the bodies on which they exert their action," and others "which break up a chemical compound as the explosion of a shell shatters a wall." So that in the domain of microbiology the enzyme may in a certain sense be said to have "dethroned the cell." For if, as M. Duclaux continues, we can extract from the

[1] In 1852-3 the number of English students in Paris was considerable. I worked in the laboratory of the distinguished chemist Gerhardt and subsequently in that of Wurtz and Verdeil, at the same time following the demonstrations of Bernard. The day was divided between hospital attendance before, and laboratory work after, breakfast.

[2] Leber: Die Entstehung der Entzündung, &c., Leipsic, 1891.

[3] The word "enzyme" was introduced by Kühne in 1874. It has been adopted as a general term for soluble ferments which originate from cells by Professor J. R. Green in his important work on Fermentation. For this purpose it is much to be preferred to the word "diastase," which is used by Duclaux and other French writers in the same general sense.

[4] M. Duclaux is the accomplished Director of the Pasteur Institute. The passage quoted is in the final chapter of the second volume of his comprehensive treatise on "Microbiology."

cell a substance which breathes for it, another which digests for it, another which elaborates the simple from the complex, and finally another which reconstitutes the complex from the simple, the cell can no longer be considered as *one*, but rather as a complicated machine, the working of which is for the most part dependent on enzymes, which, however numerous and varied may be the processes in which they are engaged, all follow and obey the universal law of adaptation and all contribute to the welfare and protection of the organism.

Admitting that we may provisionally delegate the function of the cell to its enzymes the question may still be asked whether by doing so we acquire a better understanding of organic life. The answer may, I think, be easily given. The only way in which we can explain a vital phenomenon is by determining its non-vital conditions. The essence of physiological experimentation consists in the elimination of the mystery of life.[5] As regards each chemical function of the cell, taken separately, the first step towards this result is to reproduce *in vitro* what one has observed *in vivo*. Even though it may be impossible to state the nature of the process in chemical language, it is a great advantage to be able to study its relation to external conditions which have nothing to do with its vital origin. In illustration of this we may take a physiological process in relation to the nature of which the vitalistic idea has held its ground with great pertinacity—the alcoholic fermentation. It was not until 70 years had elapsed since the discovery of the yeast-plant, that Buchner, by employing more effectual methods than had been devised by his predecessors was at last able to prove that the alcohol-producing enzyme can be separated from the zymogenetic cell—i.e., that the chemical process which has been the source of so much good and evil to the human race may be brought about without the direct intervention of the living protoplasm. Another instance of nearly equal interest is that of the recent discovery and investigation *in vitro* by M. G. Bertrand[6] of the ferments on which certain plant-cells depend for the power which they possess of quasi-respiratory oxidation and the experimental proof which he has given that this is effected by the agency of an oxidising enzyme. It cannot be said that in either of these instances the way in which the enzyme acts can be *explained*.[7] In each case a process hitherto regarded as vital has been shown to be chemical, but the mode of action of the enzyme cannot as yet be stated in chemical language, so that the value of the discovery lies in the biological importance of the process and the new power which the physiologist has gained of subjecting it to exact investigation. In futherance of that investigation all that chemistry can do at present is to furnish us with efficient technical methods, but eventually—in the course of the next century—there can be no doubt that the purely chemical problems relating to the action of ferments which in the course of the next few years the biologist will one after another submit to the chemist will receive their answers. In the meantime let us avoid skating on thin ice. The value of the generalisation that each chemical function of the cell is the work of an enzyme, however admissible it may seem, depends on the number and importance of the phenomena to the elucidation of which it has been successfully applied. So long, for example, as a process of such fundamental importance as that by which the plant cell with the aid of sunlight is capable of elaborating carbohydrate out of material derived from the atmosphere has not been shown to be zymotic, we must carefully guard against giving the theory anything like the authority of a biological law.

May I now, by way of sequel to the general considerations relating to the chemical functions of cells which have occupied our attention, say something of their bearing on what may be called the "cellular pathology" of to-day, the relation of which to that of 40 years ago I have already indicated. The examples to which I referred just now related to the physiology of the plant cell. Our pathological problems relate to the constituent cells of our own bodies, the chemical functions of which present much greater difficulties to the investigator. It is not difficult to understand why more progress has been made in the investigation of isolated cells, such as coloured and colourless blood corpuscles and the nucleated cells which constitute the adenoid tissues, than in those relating to the constituent cells of organs. From the study of the cells of adenoid tissues we have learned that the nucleus not only governs the development of the cell but that it has chemical endowments which distinguish it from the protoplasm which surrounds it. I need only mention in this connexion the researches made by my friend Sir L. Brunton more than 30 years ago in Professor Kühne's laboratory, the subsequent work of Miescher the discoverer of nucleine, and the much more extended investigations of Professor Kossel of Marburg, which have given us such exact information as to the products of decomposition of nuclear substance.

As regards the coloured corpuscles, important discoveries have been made during the last few years in two directions. They have been studied first in relation to their physical properties, and particularly in relation to their osmotic relations to organic and inorganic substances in solution. I need only remind you of the work done by Professor Hamburger of Utrecht and by Dr. Hedin of Lund in Sweden. Still more interesting results have been obtained by investigations conducted in France and Germany relating to the physiological and chemical conditions which, on the one hand, render them capable of resisting the "globulolytic" action of the blood plasma, or on the other hand, compel them to yield to that action.

As the subject of hæmolysis at the present moment is receiving much attention, both here and elsewhere, I may be permitted to devote a few moments to its discussion. The fact that the blood discs are in general destroyed when they are introduced into the circulation of an animal of a different species has been long familiar to us. A few years ago it was demonstrated by Buchner that the hæmolytic power has its seat in the plasma and consequently in the serum. Still later, M. Bordet of the Pasteur Institute made a remarkable discovery that the hæmolytic process now in question is identical with the well-known "bacteriolysis" which takes place when pathogenic micro-organisms are acted on by the serum of an immunised animal. By a numerous series of observations *in vitro* and *in vivo* he showed that the lytic substance in the serum which acts on the vibrio of cholera and that which acts on the blood discs are identical, provided that the serum also contains a *tertium quid*—a certain substance which has a specific antagonistic relation to the *materies morbi* in the one case, to the "alien" blood-disc in the other. In other words the intruding blood-disc acts, and is acted upon, exactly as if it were an infective agent. To this specific body M. Bordet gave the name of "*sensibiliser*" because it renders the blood-disc or the specific micro-organism susceptible to the attack of the normally present hæmolytic ferment. The "*sensibiliser*" serves, so to speak, as a key, by the application of which the ferment is enabled to penetrate into the interior of the blood-disc so as to act on its susceptible constituents. And inasmuch as it appears to be proved that every blood-disc is liable to be affected by the presence of a plurality of substances possessed of the specific *intromittent* function, it seems as if one must admit that it must possess a corresponding number of specific susceptibilities; for if there are several keys, each differing from all the rest, there must be as many locks to which they severally fit.[8]

It is apparent that these beautiful researches have a special interest in relation to the occurrence of hæmolysis as a symptom—i.e., to the solution of the blood-discs which occurs in a variety of morbid states—but it is by the help which they are likely to afford us in our efforts to understand the origin and essence of disorders of nutrition, that the facts which have been disclosed relating to the chemical physiology of the blood-cells are most likely to be of service.

[5] That is, so much of the mystery as depends on vital conditions. Many physical and chemical processes—e.g., the production of muscular force and, as will be seen further on, the assimilation of carbon by plants, remain mysterious even after the vital element has been eliminated. The physiologist, however, has done his part and can hand over the unsolved problem to the chemist or physicist, as the case may be, with the assurance that eventually the explanation will be got at.

[6] Comptes Rendus, vols. cxxi. and cxxiii., 1895-96.

[7] In physiology and pathology we use the words "explained" and "understand" in a much stricter sense than that in which they are used by some popular writers on biology. To prove that what happens is in accordance with the general law of adaptation is not to explain it.

[8] Those who were present at the lecture given by Professor Ehrlich at the Royal Society last spring will notice that Bordet's "hæmolytic substance," or alexine, corresponds to Ehrlich's "complement" and Bordet's "*sensibiliser*" to Ehrlich's "immune body." The language differs but the experimental data are in agreement. It is proved that two substances are concerned—viz., a hæmolytic substance or "alexine" normally contained in the liquor sanguinis, which cannot, however, exercise its hæmolytic action unless the key to the lock—the *sensibiliser*—be present. M. Bordet's principal results were published in 1898. A second paper appeared this year.

In the action of the liquor sanguinis on alien blood-discs we have an exemplification of the way in which ferments may play a part as the instruments by which the constituent cells of different organs may influence each other for good or evil without coming into contact. When we turn from the blood-discs and leucocytes to the constituent cells of organs, it is obvious that the difficulties of investigation are infinitely greater. The suggestion which naturally presents itself is that the actions on each other of the constituent cells of different organs within the body of the same individual, are brought about in a similar way to those which we have learnt to recognise in the actions of indigenous blood-corpuscles on aliens; that is to say, that among the metabolic products which each species of cell throws into the blood-stream or lymph-stream there are specific substances which are analogous to M. Bordet's "*sensibilisers*" in so far that by their presence or absence the prosperity or decadence—the functional activity or the contrary—of other cells is directly affected. Vague as such language appears it may serve to indicate the lines along which we must work in our efforts to solve some of the most important problems of cell-pathology. In all dystrophic conditions—e.g., in the functional disorder of muscle and of liver-cell which renders these structures incapable of holding carbohydrate in reserve—in the autotoxy which manifests itself in the graver form of diabetes—in the "acid intoxication" which is associated with acute disintegration of the liver—in morbid conditions attributable to "internal secretions"—in all of these instances we have to do with disorders of the chemical functions of cells. In all our endeavours to ascertain the immediate and determining causes of these disorders we may with no less advantage at the present time than formerly allow ourselves to be guided by the principles and methods of the cellular pathology as Virchow taught them nearly half a century ago. The principles remain unchanged; as regards the methods, we have only to add to those we then learned the newer ones which the progress of knowledge has placed within our reach.

ON THE PATHOLOGY AND THERAPEUTICS OF SCURVY.

BY A. E. WRIGHT, M.D. DUB.,

PROFESSOR OF PATHOLOGY, ARMY MEDICAL SCHOOL, NETLEY.

I PROPOSE here to place on record the results of a series of examinations of the blood, instituted with the view of testing the correctness of the inferences with regard to the nature of scurvy which were set forth by me in a paper on the Pathology and Therapeutics of Scurvy, printed in the Army Medical Report for the year 1895 (published in March, 1897). The line of thought which runs through the paper in question was briefly as follows.

The scorbutic condition is a pathological condition which is induced by a dietary consisting of meat and cereals to the exclusion of green vegetables, tubers, and fruits. Inasmuch as the food-stuffs which are excluded from the dietary in question are food-stuffs which contain an excess of bases over mineral acids, while the food-stuffs (meat and cereals) which remain are food-stuffs which contain a large excess of mineral acids over bases, it is obvious that the scorbutic condition is one which supervenes upon the ingestion of a considerable excess of mineral acids over bases. It would, in view of this consideration, seem probable that scurvy is a condition of acid intoxication, very similar to the acid intoxication which can be experimentally produced in herbivora by the ingestion of a surplus of mineral acids. The theory that scurvy is essentially a condition of acid intoxication would appear to be in harmony with the circumstance that the rapidity with which the scorbutic condition supervenes depends, apparently, upon the degree to which the mineral acids are in excess in the dietary. The condition is apparently more rapidly superinduced by a dietary of corned meat (i.e., meat which has been rendered hyperacid by the removal in the process of corning of the alkaline salts of the blood and lymph) than by a dietary of fresh meat (i.e., meat which still contains these alkaline salts). Similarly infantile scurvy would seem to be generally dependent upon the substitution of more acid food-stuffs (preparations of cereals sold under the designation of "infant foods") for the less acid food-stuff, milk. Justification for the identification of scurvy with a condition of acid intoxication would appear to be afforded also by the consideration that the scorbutic condition is remedied or alleviated by the addition to the scorbutic dietary of any one of a whole series of different substances—tubers, green vegetables, decoctions of leaves and growing shoots, blood (used for this purpose by the Laps), fruits, and fruit juices—substances which have apparently in common only the circumstance that they all contain an excess of bases over mineral acids. It was pointed out in the conclusion of the paper whose argument has just been summarised that, given the correctness of the above view of the origin and nature of scurvy, the proper prophylaxis and treatment of the condition would consist in the administration of salts of oxidisable organic acids, inasmuch as such treatment would lead by the most direct means to the retention or restoration of the normal alkalinity of the blood.

Enough will now have been said to place the reader in possession of the ideas which dictated the line of inquiry and the therapeutic measures which were adopted in the following cases of scurvy which came under observation in the wards of the Royal Victoria Hospital, Netley.

The question of the presence or absence of a condition of acid intoxication was in each case investigated by the method of hæmalkalimetry. The hæmalkalimetrical method employed was the method which was described by me in a previous communication to THE LANCET.[1] As estimated by that method, the alkalinity of the normal blood is represented by the formula $\frac{N}{35}$. In other words, the alkalinity of the blood is under ordinary conditions of health such that the addition of one volume of a normal acid, 35 times diluted, to an equal volume of serum, just suffices to deprive that serum of its power of blueing sensitive litmus paper.

The particulars of the cases of scurvy which were examined are as follows.

CASE 1.—Private A. Patient was examined on May 1st, 1897, when considerable subcutaneous ecchymoses were found interspersed with smaller purpuric spots on the legs and arms. There was general yellowish discolouration of the skin and brawny discolouration and œdematous effusion of the right foot and ankle. There was no noticeable sponginess of the gums. The alkalinity of the blood was $\frac{N}{100}$. On the 10th three three-gramme (45-grain) doses of acetate of potash were prescribed. There was some resultant diarrhœa. On the 12th the alkalinity of the blood was $\frac{N}{100}$. In lieu of previous treatment two grammes (30 grains) daily of acetate of soda were prescribed. On the 14th the alkalinity of the blood was $\frac{N}{70}$. The same treatment was continued. On the 18th the alkalinity of the blood was $\frac{N}{70}$ and the treatment was persisted in. On the 21st the alkalinity of the blood was $\frac{N}{70}$ and four grammes (60 grains) daily of tartrate of soda were prescribed. On the 24th the alkalinity of the blood was $\frac{N}{55}$ and the treatment was continued. On the 26th the alkalinity of the blood was $\frac{N}{45}$. The patient, who had previously, on a regimen of lime juice, had several recurrences of the purpuric eruption and of the swelling in the foot, became perfectly well.

CASE 2.—The patient, a sergeant, developed typhoid fever on the transport returning from South Africa. On June 12th, 1900, his condition was as follows. There was a characteristic earthy yellow complexion; the gums were spongy, deeply ulcerated, and covered with blood; and the mouth, in spite of treatment with antiseptic washes, was so sore that the patient could hardly speak or drink. The alkalinity of the blood was $\frac{N}{100}$. Four grammes of lactate of soda daily were prescribed. On the 17th the complexion and condition

[1] THE LANCET, Sept. 18th, 1897, p. 719.

of the mouth were found to be much more satisfactory. The patient could speak and swallow without pain. The alkalinity of the blood was $\frac{N}{35}$. The patient afterwards succumbed to typhoid fever.

CASE 3.—The patient, seen for the first time on May 5th, 1900, was a private soldier and was one of the beleaguered garrison at Ladysmith. He had a history of dysentery, complicated by frequent epistaxis. Since the raising of the siege his dietary had consisted exclusively of milk. The patient was seen to be in a very precarious condition. He was extraordinarily emaciated and was too feeble to raise his head from the bed. His complexion was of a dark greenish-yellow colour, like that of a corpse which had been buried. His mouth was very foul, the gums being covered with blood-stained sordes. A thin bloody fluid oozed at times from the nostrils. He had frequent serous motions, especially at night, the calls being so often repeated and so sudden as to prevent sleep. The alkalinity of the blood was $\frac{N}{200}$. One gramme of bicarbonate of soda three times a day was prescribed. On the 7th the blood coagulation time (estimated at the standard temperature of 18·5° C., in coagulation tubes of the standard calibre of 0·25 millimetre), was seven minutes. The quantitative estimation of calcium salts in the blood (estimated by mixing in capillary tubes one volume of pure neutral oxalate of soda solution with an equal volume of blood) showed that the minimum addition of oxalate of soda which sufficed to keep the blood liquid was 1 in 300. The treatment was continued. On the 9th five grammes of lactate of soda were prescribed. On the 10th the lactate of soda was reduced to 2·5 grammes daily. On the 11th the alkalinity of the blood was $\frac{N}{40}$. After this the patient improved in an extraordinarily rapid manner, his complexion becoming healthy and his dysenteric symptoms amending. He left the hospital about eight weeks afterwards looking robust and well nourished, every trace of scurvy having passed away.

CASE 4.—The patient, who also was seen for the first time on May 5th, 1900, had arrived by the same transport as the patient in Case 3. He had been in Ladysmith during the siege. The patient was found to be in an extremely emaciated and very precarious condition. There was the characteristic yellowish-green complexion noticed in the last case and the body was covered with the remains of a (? purpuric) eruption. There was a large sore under the tongue. There were frequent dysenteric stools associated with great pain. The alkalinity of the blood was $\frac{N}{150}$. Two grammes of citrate of potash daily were prescribed. On the 7th the blood coagulation time was eight minutes. The quantitative estimation of lime salts in blood showed that an addition of 1 in 600 of oxalate of soda was the minimum addition which sufficed to keep the blood liquid. The alkalinity of the blood was $\frac{N}{55}$. The same treatment was continued on the 8th and on the 9th five grammes of lactate of soda were ordered. On the 10th the lactate of soda was reduced to 2·5 grammes daily. On the 11th the alkalinity of the blood was $\frac{N}{35}$. The patient made a good but gradual recovery. He is now well nourished and has a clear healthy complexion, but he still suffers periodically from severe intestinal pain.

CASE 5.—The patient was a private soldier who arrived from Ladysmith by the same transport as the patients in Case 3 and Case 4. The diagnosis was dysentery complicated with phthisis. There was no history of bleeding or of purpuric eruption. He was not so reduced as the last two patients, being strong enough to sit up in bed. There was no sponginess of the gums, but the characteristic yellowish discolouration of the skin was present. There were large cavities in both lungs. The alkalinity of the blood on May 5th, 1900, was $\frac{N}{80}$. Three grammes of sodium bicarbonate daily were prescribed. On the 9th five grammes of lactate of soda were given, the dose being reduced on the 10th and following days to 2·5 grammes daily. On the 12th the alkalinity of the blood was $\frac{N}{35}$. The patient died on the 16th. The necropsy showed widespread destructive changes in the lungs and extensive ulceration of the intestine.

CASE 6.—The patient, seen first on June 17th, 1900, was a private soldier, aged 22 years, who had been one of the beleaguered garrison of Ladysmith and had suffered from enteric fever during the siege. He was found to be in a most extreme condition of emaciation, being reduced to skin and bone. Both buttocks were the seat of enormous bed-sores. At times he appeared to be almost exanimate, the whites of the eyes being alone visible. A fluctuating abscess of the size of a small orange occupied the left side of the cheek over the jaw. Watery blood oozed from the gums and a quantity of yellow serous discharge came from the nose. In spite of hot bottles and thick blankets the patient felt stone cold. His feet were considerably swollen and were covered with extensive ecchymoses; there were ecchymoses also on the legs and arms. The patient at times yelled with the pain of the bed-sores and of the frequent cramps in his legs. His intelligence was disordered and he begged for his legs to be cut off. His motions were passed under him in bed. The alkalinity of the blood was $\frac{N}{110}$. Four grammes daily of lactate of soda were prescribed. There was no noticeable change in his condition on the 18th, his mind still rambling. The treatment was continued. On the 20th his condition had much improved; he felt warm and the œdema of the feet had somewhat subsided. He said that the cramps were less frequent and that the bed-sores were not so painful. The abscess in the cheek had burst into the mouth. The alkalinity of the blood was $\frac{N}{35}$. The treatment was continued. On the 22nd the patient declared himself much better and asked to be allowed to smoke. On the 24th his temperature rose, the curve assuming a characteristic septic type, and the bed-sores were found to have assumed a gangrenous appearance. He succumbed on the 28th. The necropsy disclosed a certain amount of thickening, pigmentation, and congestion of the intestine. There was no effusion into the serous membranes. A colourless gelatinous substance occupied the medulla of the long bones. In spite of frequent examination directed to this point no trace of rigor mortis was detected.

CASE 7.—The patient was a private soldier and was also one of the beleaguered garrison of Ladysmith. He was brought into hospital from the transport on June 18th, 1900, in an extremely emaciated and moribund condition. The whole front of the body, from the neck to the umbilicus, was occupied with an extensive blood extravasation. In places where the epidermis had peeled off the surface resembled that of dried raw meat, and there were copious ecchymoses over the limbs and other parts of the body. Five grammes of lactate of soda were administered in milk. He succumbed a few hours after admission. Beyond the appearances described above and a complete absence of rigor mortis nothing characteristic was discovered at the necropsy. The alkalinity of the blood which was taken from the heart 22 hours after death[2] was $\frac{N}{100}$.

The fact that in all these cases the alkalinity of the blood was so strikingly reduced, and the fact that in every case (with the exception of the last where there is reason to suppose that the drug was not absorbed) a very striking amelioration of the condition followed upon the exhibition of lactate of soda and other similar substances, seems to me to establish beyond doubt that scurvy is—as was suggested in the paper referred to above—a condition of acid intoxication.

The following subsidiary points would appear to be deserving of notice:—1. Cases 3, 4, and 5, in which dysenteric symptoms were prominent, were well marked off from cases of ordinary dysentery, not only by their characteristic clinical features, but also by the fact that the alkalinity of their blood was diminished. The alkalinity of the blood in the uncomplicated cases of dysentery was not found to differ from the normal. 2. It was found that there was neither a notable reduction of blood coagulability nor a diminution of the lime salts of the blood in Cases 3 and 4, where these points were specially investigated. Nor were there in any of the three cases which succumbed any effusions into the serous cavities such as are described in the older records

[2] Observations made specially to determine whether any alteration of alkalinity occurs after death appear to show that there is in the case of blood taken from the heart only a very slight diminution of alkalinity within 24 hours after death.

as constituting a characteristic feature in pronounced cases of "sea scurvy."[3] 3. Case 2 would seem to be of interest as showing that the scorbutic condition may supervene and complicate the course of a specific fever. This point would seem to deserve attention, not only in connexion with the fact that a patient admitted for specific fever may previously have been subsisting on a scorbutic dietary—as will not unfrequently be the case in soldiers on active service—but also in connexion with the circumstance that a scorbutic condition may be induced during the course of a fever by the restriction of the patient to a dietary consisting of "acid food stuffs."[4] 4. A comparison of the course of events in Case 1 with the course of events in Cases 3, 4, 5, and 6 (all of which were much more severe) would seem to indicate that the desired increase of alkalinity can be more rapidly achieved by the administration of lactate of soda than by the administration of the salts of the less easily oxidizable organic acids. This is in conformity with what might *a priori* have been expected.

In conclusion, I desire to express my best thanks to Colonel W. E. Webb, R.A.M.C., and to Mr. F. J. O. Stephenson and Mr. F. J. Pearson, civil surgeons, for the facilities which they placed at my disposal in connexion with the study of these cases.

Netley Hospital.

EYE DISEASE IN EGYPT.

BY KENNETH SCOTT, M.B., F.R.C.S. EDIN.,
OPHTHALMIC SURGEON TO ST. MARY'S CHILDREN'S HOSPITAL.

IN native Egyptian life there are a marked amalgamation and close intercourse between the different social grades which are in strong contrast to the general custom of other civilised countries, and the town populations also merge intimately with those of the country. These factors, together with the general manner of living and the climatic conditions, cause the type and frequency of eye disease to be very evenly distributed amongst all ranks and classes.

The sequence of cases on which these remarks are founded forms only a very small proportion of the total number of similar ones which passed through my hands whilst in Egypt, yet it may be considered a fully representative one, as it is a series of hospital in-patients possessing accurate statistical record and is sufficiently ample to serve as a basis of comparison. Out-patients of the hospital and cases in private practice are not included here, as their statistics cannot be so fully complete. Although my work extended over a longer period than that covered by these cases (Jan. 1st, 1891, to Dec. 31st, 1898) exactly compiled statistics are only available for that time. In preference to selecting any one year for observation the cases have been aggregated together so that an average ratio may be deduced, and although this is perhaps fairer, yet it may be pointed out that the opportunities for such study at first were very meagre in comparison with what obtained later, when the department comprised 60 beds, of which 40 were for males and 20 for females. When the various cases were classified many of the patients were found to have suffered from a variety of eye affections, and frequently each eye was also differently affected—e.g., leucoma centrale, trichiasis, trachoma, and dacryocystitis formed no uncommon combination. On this account all the cases were arranged according to the principal condition treated, and in this connexion visual impairment was given precedence over other forms of disease. The most active period of work during the year extended from May to October inclusive, when the average shade temperature is 84·2° F. (29° C.), as shown by the records of 20 years. The acuter forms of eye disease are then most rife and the infective cases assume a more intensely aggressive character. In the other period, from November to April, the average temperature is 53·6° F. (12° C.). The light coming into the wards was not obscured in any way, as ordinary large paper shades over the eyes, when necessary, afforded quite efficient shelter and rest from the glare, whilst the patients benefited in their bodies by the general light which is always so essential for their rapid recovery and well-being. The only marked relief from the constant pressure of admissions to the beds occurred in the month of Ramadan, when Mahomedan canonical law forbids the introduction of anything into the stomach by way of the throat from the time of the rising to the setting of the sun, and even collyria are included in this prohibition, from their being able to reach the throat by way of the lacrymal passages. No efforts were made, except in extreme cases, to overcome this prejudice, as it gave an opportunity of affording a well-merited rest to the native nursing staff.

During this period of eight years there was a total of 5358 cases, making a yearly average of 669. They are grouped in the table appended to this article according to the site involved by the principal disease. The operations numbered 7081, averaging 885 yearly; they also are arranged in accordance with their site, which is simpler but does not always coincide with the condition which they relieved. It was a continual source of regret that owing to the constant pressure of work imposed by the adequate treatment of the patients but scant attention could at times be afforded for the proper pathological investigation of many of the interesting cases.

The conjunctival cases numbered 742, forming 13·84 per cent. of the whole series; amongst them were 77 instances of intensely *acute catarrhal conjunctivitis*, which had always some iritis associated with it. The onset was invariably sudden, and although attempts were made frequently to discriminate the exciting cause they were never entirely successful except in proving the absence of gonococci. The treatment varied somewhat in accordance with the extent to which the tissues were involved, but principal reliance was placed on solutions of cyanide of mercury, varying in strength from 1 in 50 to 1 in 2000; the progress of recovery was usually uninterrupted. *Acute purulent conjunctivitis* was represented by 177 cases. The majority were in all probability cases of a later and neglected stage of the acute catarrhal inflammation; nearly one-third of them presented some serious destructive process of the globe. The gonococcus was found in only a very limited number. The treatment followed was almost identical with that of the acute catarrhal cases. In *granular conjunctivitis* or *trachoma* only those patients whose cases were very aggravated were ever admitted into the hospital: they numbered 297, but were sufficient fully to establish the certain and rapid results obtained by the use of perchloride of mercury in solution, as compared with the effects of other agents which were carefully tried from time to time. The perchloride was usually painted on to the affected areas of the conjunctiva each day in strengths varying from 1 in 25 to 1 in 400. Expression of the contents of the granules was sometimes combined with local applications and may have facilitated the progress of cure, but operative measures alone were found insufficient. Instances of deformity and lack of success attending excision of the conjunctival fornix by others were sufficiently numerous to prevent that procedure being adopted. The presence of some trachoma on the lids when operation on the globe happened to become compulsory was never found to interfere with the success of the result. Research as to the bacterial origin of trachoma carried out by competent authorities[1] did not yield anything of a decisive nature. Only the worst sufferers from *ophthalmia neonatorum* ever found their way to the wards as there were special means of dealing with them elsewhere. In the treatment of these cases solutions of cyanide of mercury were preferred to other remedies. *Phlyctenular conjunctivitis* was ordinarily frequent and it occurred at all seasons of the year; it occasionally assumed a giant form, and 28 cases required special treatment as in-patients. The three major inflammations of the conjunctiva, acute catarrhal, purulent, and granular, with their attendant and resultant sequelæ, may be regarded as the principal cause of impairment of the eyes so commonly met with amongst the native Egyptians who form the bulk of the population;

[3] The absence of any features pointing to a notable reduction of blood coagulability and the presence of lime salts in the blood in normal quantities in the two cases examined are possibly associated with the fact that the patients who were under observation had, so far as was known, been continuously upon a diet of milk, which though it would do nothing to correct the condition of diminished blood alkalinity would probably efficiently correct any tendency to diminished coagulability.

[4] It need hardly be pointed out that a condition of diminished alkalinity, even when it is not sufficiently pronounced to induce the characteristic symptoms of scurvy, may not be without influence in the course of a specific fever.

[1] Dr. John Eyre, and also Mr. Arnold Lawson, in Royal London Ophthalmic Hospital Report, vol. xiv., part 3.

the Arab desert tribes are comparatively immune. The infection can be traced almost invariably to direct manual contact; finger-tips and thumbs are the ordinary means amongst the lower Egyptian classes of removing surplus discharge from the eyes, and the subsequent handling of articles used in daily work readily transmits this in some form to the hands of others, whence it can be unconsciously introduced to the eye by the not unusual vigorous rubbing of the palpebral fissure. The habit of only using the back of the wrist or hand for rubbing the eye at such times would seem to avoid this possible risk of inoculation by contamination which the mutual use of cleansing lotions as practised by some does not obviate. It is a popular theory, amongst visitors to Egypt more especially, that flies are the source of this infection, but large experience convinces me that this is erroneous. Flies (*musca domestica*) are ever attracted by a gleaming sticky surface, especially if it is also an odorous one, and as it is the custom never to wash the native babies until two years after their birth the flies naturally swarm about the faces of these infants, drawn there simply by the glutinous discharge about the eyes and by the smell of other filth. Although flies alighting on infective matter are capable of carrying it to some other suitable nidus they seldom, if ever, enter the conjunctival sac of normal eyes, which is further protected by its inherent properties which are known to be naturally germicidal.[2]

A great deal of injury to eyes, and sometimes destruction, is wrought, amongst the poorer classes more especially, by the very prevalent use of locally made nostrums in the form of various dry powders, which are termed "*sheeshm*." They are principally composed of some harmless base, such as sugar, with the addition of powdered alum, ginger, cayenne pepper, and sometimes even slaked lime. The comparatively frequent occurrence of *symblepharon* (28 eyes in 16 cases) is thus attributable; the escharotic action of the "*sheeshm*," which is always used dry, denudes the opposing bulbar and palpebral surfaces, and the ensuing œdematous congestion maintains the parts at rest sufficiently long for cohesion to become fully established. There were 177 instances of *pterygium* in 97 individuals. The method of dealing with it will be referred to later.

Those suffering from corneal affections, of whom there were 1838, comprised 34·3 per cent. of the total cases. There were very few amongst them with *foreign bodies*, and three-fourths of these were due to "*sheeshm*" impacted on the corneal surface and obscuring vision; this was often relieved by use of the curette. There were 77 with various forms of *keratitis*, being 11·9 per cent. of the corneal cases, and of these the interstitial type of inflammation constituted fully the half. There were 130 cases of *ulcer* of various species, forming 7 per cent. Cornea which had become *staphylomatous* were also numerous, and of the 75 cases 48 were found to be operable. The greater bulk of the corneal cases, 58·3 per cent., were entered as *leucoma;* these were of every degree and with varying complications. *Necrosis cornea* accounted for eight cases; they were a sequela of acute purulent conjunctivitis and occurred usually in people very much debilitated. There was a series of 97 cases classed as *vascular cornea*, but these only formed one-third of the actual number which often accompanied graver maladies. In these there were distinctly separate blood-vessels, varying in number, which passed on to the cornea from every point of its periphery and ramified superficially over its surface anastomosing with each other by a network of fine branches. They were unconnected with any ulcerative condition and there was often no active process of inflammation or cicatrisation present. It seemed to be a varicose condition remaining after previous vascular new formation and congestion, the result at times of some contiguous chronic inflammation, but occasionally due to the irritation caused by trichiasis and still more frequently to that produced by the prevalent habit of systematically using "*sheeshm*." *Trauma* of the cornea as well as of other parts of the eye was of common occurrence. It was but seldom due to accident; it was occasionally self-inflicted with the object of escaping military service or of acquiring rights to the enjoyment of a pension, but usually it was caused by malicious violence by those who were addicted to, and were depraved by, the use of "*hashish*." *Epithelial xerosis* was not at all uncommon and its occurrence was not limited to any one season of the year; it was more frequently seen on the cornea than on the bulbar conjunctiva but sometimes it stretched across the limbus, and was rarely met with on the palpebral conjunctiva. It sometimes occupied quite a large area of the cornea and interfered with vision; skilled observation often showed that these patches had covered the same area for long periods without spreading further. Successful cultivations could always be obtained on suitable artificial media, but the production of the growth elsewhere on living tissue, and also its original cause, remained unsolved problems. Scraping and the use of antiseptics failed as modes of treatment, but the application of the actual cautery at a dull heat was always permanently successful, although the tissues seemed to resent its use more than is customary, as evidenced by the reaction produced.

There was a small series of cases of great interest in which there was a distinct extraneous growth of the cornea occurring in one or both eyes. It was always well defined and of a firm gelatinous consistence, pale yellowish pink in colour and semi-translucent, and with a few distinct blood-vessels joining its two corners at the periphery of the cornea. It was usually situated on the upper segment of the cornea, to which it was always attached by the whole of its base. In shape it was uniformly flattened, varying in thickness from one to two millimetres; its line of demarcation from clear corneal tissue was sharply defined, its surface as well as that of the cornea was always intact, and there was no evidence of any inflammatory process. When situated opposite the palpebral aperture the centre of the growth was more prominent than the edges and the colour was of a more vivid red. Such growths varied somewhat in size, at times occupying the upper third of the cornea, and were of exceedingly slow growth and quite painless; they were known by the laity as "*benzahayra*," and as there was a superstitious reverence attached to them they came under the surgeon's care, as a rule, only when they encroached on the line of vision. They were easily removed in the form of a thick pellicle by the careful use of an angular keratome, and were always found to have an intimate vascular relation to the surface of the cornea which remained unaltered, with the exception of a slight diffuse opacity marking the site. There were eight of these tumours in this total series of patients, but I also met with them outside the hospital, as they were not confined to any particular rank of life nor were they peculiar to any occupation. Although I made every endeavour to obtain pathological scrutiny of their nature something unfortunately in each instance happened to mar the accuracy of the report; the only point which I was able to establish was the absence of tubercle.

As the poorer classes are mostly illiterate, errors of refraction seldom came under notice in hospital, yet needless to say there were numerous cases elsewhere. The majority of these were myopic, usually with astigmatism superadded, and they were often further complicated by irregularity of the corneal surface without opacity, the result generally of inflammation during early childhood. Whilst completing the examination of some cases for a medical colleague I found several patients with apparently healthy eyes but whose refraction, tested objectively with a mydriatic, showed errors of medium degree, both simple and compound; they themselves were quite illiterate, as were also their progenitors for generations. Arabic letters and numerals did not lend themselves to the subjective testing of vision, nor were the illiterate figures (E) of Snellen found to be applicable, but by the omission of the central short bar in the latter a type was produced which, arranged in series, was readily intelligible to the bulk of the patients.

Eyelid cases amounted to 1511, which was 28·2 per cent. of the total; two-thirds of these patients suffered from misdirected eyelashes, which included *districhiasis* and *trichiasis* both partial and total. The cases were as a rule so infinitely varied and complex that the simple term "trichiasis" was applied to them all as the only way of avoiding unnecessary minutiæ and consequent confusion. Some of the cases were undoubtedly congenital, but most of them bore distinct evidence of a previous inflammatory process, and it might be presumed that the resulting cicatricial formation was the principal cause later of the distorted position of the eyelashes. Total trichiasis occurred

[2] Contribution to the Bacteriology of the Normal Conjunctival Sac, by Dr. John Eyre, Annals of Ophthalmology, October, 1897.

in 1172 cases; *ectropion* was not uncommon, and *tumours*, both benign and malignant, were not rare.

The diseases of the fundus were usually those of major import. There was a marked preponderance of *optic atrophy*, both partial and complete, which could seldom be ascribed to local causes; when partial, it often indicated the existence of ataxia hitherto unnoticed. Very few of the cases of optic atrophy were the result of *glaucoma*. This latter supplied 261 cases, being 4·8 per cent. of the full series. Only 10 of them had reached the complete and final stage.

There were 63 cases (1·1 per cent.) of *panophthalmitis suppurativa*, which was often a sequela of purulent conjunctivitis, but not unfrequently also idiopathic. As a general rule the implicated organ was removed, but sometimes this was inadvisable owing to the surrounding tissues being much involved or to the general condition of the patient being too unsatisfactory. Evisceration by irrigation was then accomplished and the condition was quieted by suitable fomentations; no bad results were ever subsequently noted in these cases although the scleral envelope remained.

Disorganised eyes were peculiarly frequent. In the last statistical year (1898) there were 89 cases with one eye disorganised in a total of 686 admissions; this may be taken as a fair basis and in the gross total of 5358 patients would yield an average of 712 cases (13·28 per cent.), each having a wholly disorganised eye; there were only four instances of *sympathetic iritis* in this number. It will be readily seen that this is a very small proportion in comparison with what might have been expected in these 712 cases, which might, in accordance with views widely held, be considered as essentially predisposed towards its occurrence. There is a strong Mahomedan belief that the loss of any member of the body and consequent deformity in this world will preclude admission to the enjoyment of the after-life, and it was deemed expedient to conform to this general feeling as much as possible so as to avoid prejudicing opinion against the eye-work as a whole. It was under these circumstances that I was able to realise that the occurrence of sympathetic iritis is apparently a very greatly over-rated element of danger and that expectant treatment need not be insisted on, as it can be suitably encountered should it occur. Of the large number of eyes (an average of 712) already referred to as "disorganised" by previous inflammatory changes only 139 were removed by operation. The principle which eventually guided me in the treatment of all these cases was never to remove an eye which possessed any perception of light or where there was any possibility of such restoration, provided there were no signs of inflammation present to make its removal an urgent matter; also never to insist on the removal of any simply disorganised eye unless the patient voluntarily expressed such a wish, because the operation, although its technique is so simple, is sometimes, though only very occasionally, followed by extreme collapse which it is difficult to foresee or even to understand.

There were 28 cases of direct *trauma of the globe*, 22 of these being rupture caused by violence; in seven of these latter symptoms of sympathetic iritis had supervened on admission to hospital.

Cases classed under affections of the iris formed 3·3 per cent. of the gross total, and nearly half of them were *iritis* of varying form.

Disturbance of the *lacrymal apparatus* formed 1·8 per cent. of the whole series; two-thirds of them presented inflammation of the sac which was occasionally bilateral, when there was frequently a fistula established as well. There were two cases of complete obliteration of the nasal portion of the passage, and they were restored by a means of operation which ultimately became the assured groundwork for treating all cases of severe stenosis of the lacrymal duct. There were a few cases of a peculiar inflammatory induration of the skin and subjacent tissue occurring in young people, sometimes extensively, over the inner half of the rim of the orbit, and only occasionally associated with lacrymal stenosis; in most of these cases the surface had already become ulcerated, but this never extended beyond the palpebral area. It was readily submissive to treatment by simple curetting, attention to the lumen of the lacrymal duct, and suitable internal remedies.

Alterations in the lens were diagnosed in 325 of the cases (6·06 per cent.), 223 of these were due to *senile cataract* which not unfrequently had other local conditions also requiring operation; marked differences in the densities of the nucleus and periphery of the lens (Morgagnian) were unusually common. There were 33 cases of *lamellar cataract*. They occurred in young people between four years and 27 years old; they were almost without exception entirely devoid of any trace of constitutional disease, but some of them were the subjects of anæmia which was then often extreme and could usually be ascribed to the presence of bilharzia hæmatobia. The history of the cases was in many instances strikingly similar and could not be disproved by any cross-questioning. The simple narrative was that the patient had gone to bed at night with the eyes quite normal, but on waking in the morning vision was no longer possible and the eyes presented the condition noticed on admission. Other than this unvarying and peculiar history no abnormality was ever discerned, either at the time of operation or subsequently. Cataract was familiar to the people and was termed "*moya bayda*" (= white water), they thus distinguished it from glaucoma which they called "*moya zarqa*" (= blue water).

Changes in the equilibrium of the external muscles of the eye were extremely common; the condition of strabismus was so universally distributed amongst all classes that it scarcely provoked comment, nor was it even held to militate against the personal appearance; it was only when some particular paralysis or paresis supervened and caused diplopia that resort to treatment was deemed advisable.

The operative procedures required in this series of 5358 cases amounted, exclusively of minor ones, to a total of 7081, which was a yearly average of 885; for simplicity they were classified according to the site of operation, and a few of them demand special reference.

In cases of pterygium the extraneous tissue was made tense by raising it on a tenotomy hook, and with an angular keratome it was then carefully dissected off from the surface of the cornea. Its base was excised with scissors from over the sclera, and the process of repair was only aided by sutures when the resultant gap was of considerable extent; this occurred in 77 out of 117 operations. In symblepharon a similar procedure was followed, care also being taken, as in the preceding operation, to remove all débris thoroughly from the corneal superficies, and so avoid the subsequent formation of dense cicatricial opacities. The difficulty of maintaining the separation of the opposing denuded surfaces was overcome by everting the eyelid, and retaining it in that position by fine wire sutures of silver to neighbouring parts of the face, until healing of the bulbar surface was complete. Mention has already been made of the employment of the actual cautery at a dull heat in cases of epithelial xerosis; none of the many other methods tried was of any avail. The sub-conjunctival injection of a solution of cyanide of mercury, 1 in 1000, as practised by Darier and others, proved a most efficient remedy in obstinate cases of keratitis, uveitis, and also in some affections of the fundus, such as optic neuritis, partial optic atrophy, retinitis, &c.

In all cases of corneal abscess requiring operative interference the actual cautery was employed in preference to Saemisch's more radical method, as it was equally efficient and practically produced no marked deformity. The cautery was used in all other infective processes of the cornea, such as serpiginous and allied ulcers, epithelial xerosis, &c. When "*sheeshm*," as already mentioned, had become impacted it could usually be removed in great part by scraping, as could also the raised dense nebulæ which were met with occasionally, thus restoring a useful and clear cornea. Staphylomata were usually opaque in part, and if not extending beyond the corneal area they could frequently be reduced in form by suitable partial excision and suture; a more sightly appearance was thus produced which could be further enhanced by tattooing, and occasionally made useful by the performance of a visual iridectomy. No untoward incident occurred in the 48 cases thus treated. The most satisfactory way of abolishing the condition referred to as "vascular cornea" was by gently slitting the larger trunks of the vessels longitudinally, as they ramified on the cornea, thus converting them into open canals; it was readily done by a small Graefe's knife with the aid of a large magnifying lens, and the insignificant scratches thus made were treated as simple abrasions until healed. The almost imperceptible striæ marking the site of the obliterated vessels ultimately disappeared under appropriate treatment. Dividing the vessels transversely near the limbus as subsequently suggested by Schmidt-Rimpler, is not nearly so

certain and efficient, because a process of repair by anastomosis can be so readily established; the same remark applies to the operation of peritomy whether by excision or by the cautery. The above slitting of the vessels was done in 334 instances.

Blepharophimosis was a condition which often required relief, and in 159 cases a simple canthectomy was sufficient, but in 460 a more complete canthoplasty was necessary; after division of the canthus, the bulbar conjunctiva was undermined and attached to the respective prolonged margins of the lids, which were then kept apart during healing by withdrawal of the upper lid towards the eyebrow by means of a fine silver-wire suture. Ectropion, operated on 84 times, was overcome in 22 examples by shortening the length of the lower eyelid at its outer end and forming a new canthus there; there were 27 instances of ectropion due to hypertrophy of the conjunctiva in the upper fornix, occurring in neglected cases of ophthalmia neonatorum. Successful results were obtained by introducing thick silver-wire splints into the substance of the lid, thus controlling the deformity whilst appropriate treatment was being employed for subduing the inflammation.

For the purposes of operation the condition of trichiasis and that of districhiasis were divided into "total" and "partial"; the latter term included those cases in which the distorted eyelashes were single and separate or were in small isolated groups. The most certain method with them was to cut down on the eyelash from the skin surface, excise it completely, and close the wound afterwards with a fine suture. In treating "total" trichiasis the best results were obtained by regarding the tarsal cartilage as a mal-curved long bone and bisecting it on its inner surface above the level of the roots of the eyelashes, then everting this lower portion and retaining it in its altered position until sufficient union had taken place, which was usually in six days. This operation was not only speedy, but its results were eminently satisfactory both to the surgeon and the patient; there was no external deformity produced or indication of operation, the eyelashes had assumed a normal relation to the cornea and globe of the eye, and the conjunctival surface of the lid presented a smooth and level surface on which the white cicatricial mark alone indicated operative interference. There were a few patients whose general weakness made it incumbent for an extremely rapid but efficient operation to be done, and where personal appearance was immaterial, in such cases one deep incision was made along the whole length of the free border of the eyelid, and the roots of the eyelashes thus exposed were destroyed by use of the actual cautery. Many cases of interstitial xerosis of the cornea associated with total trichiasis showed marked improvement after the latter had been cured by operation; in one case of simple interstitial xerosis the eyelids were stitched together, but the improvement obtained was not sufficiently marked to encourage repetition.

In cases of glaucoma iridectomy was performed in preference to sclerotomy. With regard to all operations involving the iris there was very little local irritation subsequently, and this was ascribed to the minutely careful toilet of the injured parts which was made before applying the dressing.

There were two cases of lacrymal obstruction in which the lacrymal duct and its osseous wall were completely obliterated; these were fully restored by the drilling of a fresh passage. This served as a useful basis subsequently in rapidly and efficiently combating other hitherto obstinate cases where there was partial bony obstruction. Eventually, by noting in each case of lacrymal stenosis the extent and degree and also the position of the narrowing of the lumen in the lacrymal duct, much information was gained which had hitherto escaped notice, it being found that the strictures varied greatly in every way. Those which were indurated, cicatricial, or osseous were enlarged sufficiently by drilling, and styles were then introduced until the wall of the widened passage had again been covered by epithelium. When chronic inflammatory congestion and consequent new formation of tissue was the cause, constant pressure by suitably adapted styles of lead wire produced sufficient effect when accompanied by the use of astringent lotions and other applications. In every case where the lacrymal passages were implicated, attention was first directed to the conditions of its effluent portion, and when this was properly restored other abnormal conditions quickly submitted to the usual methods of treatment, as obtained elsewhere in the body. Fistulæ of the lacrymal sac thus readily yielded to scraping, cauterisation, or fuller reparation, as each case might require. Tumours involving the lacrymal passages were met with; they were sometimes far advanced in growth and so involved that operation was not always possible.

In the preparation of cases for removal of cataract, besides the proper regulation of the bowels and the general cleanliness of the patient the local surroundings of the eye were carefully attended to; the eyebrow was shaved and the eyelashes cut off closely, the parts were then washed and a dressing with a mercurial ointment was applied for 48 hours. At the time of operation the instruments were sterilised by boiling and were placed in a 4 per cent. boric solution. With lamellar cataract the attempt was made, and nearly always successfully, to remove the whole of the lens matter at one sitting. The pupil of the eye having been dilated, the lens capsule was incised and the substance of the lens was disintegrated with a linear cataract knife, which when withdrawn enlarged the point of entrance sufficiently to allow of the ready introduction of a narrow curette for the complete removal of the lens matter; the lens capsule, often also opaque, was sometimes extracted by forceps. By following this method, irritation and inflammatory reaction were reduced to a minimum, as was also the risk of extraneous infection by repeated operations. In some instances where the patients approached the age of 20 years or exceeded it, the lens was so dense that it had to be removed by the ordinary method of linear incision; this was done on 37 occasions.

In the operation for senile cataract the lens was removed through a linear incision situated well forward from the limbus and usually in the upper segment of the cornea; this incision seemed to heal more readily than when placed further back and it also decreased the proneness to the iris prolapsing. Iridectomy was not performed in 96 of the operations (28·7 per cent.), which numbered 330; as there are many factors bearing on this part of the technique, the decision was always relegated to the actual time of operation and it was only performed when seemingly unavoidable. There was occasionally some loss of vitreous, but in no way did this seem to diminish the ultimate acuity of vision. Experience proved that covering the operated eye and leaving the other one free was sufficient; the dressing used was a small sterilised one of dry absorbent wool with a small piece of vaselined gauze on its surface next the skin.

Condensed Statistics of In-patients, Eye-section, Kasr-el-Aini Hospital, Cairo, Egypt, from Jan. 1st, 1891, to Dec. 31st, 1898, classified according to the Principal Diseases for which they were Admitted, and the Operations according to the Area of Tissue in which they were Performed.

Diseases.			Tissue involved.	Operations.		
Percentage of total.	Yearly average.	Total.		Total.	Yearly average.	Percentage of total.
13·8	92·7	742	Conjunctiva.	273	34·0	3·8
34·4	229·7	1838	Cornea.	519	64·8	7·3
28·2	188·7	1511	Eyelids.	3040	380·0	42·9
1·9	13·1	105	Fundus.	—	—	—
9·8	66·0	528	Globe.	187	23·3	2·6
3·3	22·1	177	Iris.	2348	293·5	33·1
1·8	12·1	97	Lacrymal apparatus.	168	21·0	2·3
6·06	40·6	325	Lens.	513	64·1	7·2
0·14	1·0	8	Ocular muscles.	18	2·2	0·25
0·42	2·8	23	Orbit.	12	1·5	0·16
0·07	0·5	4	Sclerotic.	3	0·3	0·04
100·0	669·7	5358	*Gross total.*	7081	885·1	100·0

(*N.B.—Fractions are not fully extended.*)

It was covered by a piece of muslin the edges of which were fastened by flexile collodion to the skin around the orbit; this remained untouched for from four to six days, when it was replaced by a similar dressing applied daily under a bandage. Ordinary diet was given. Although every effort was made to insist on the recumbent posture being maintained it was

obeyed in comparatively few instances, and yet the satisfactory progress of the cases was unimpaired. The patients, whenever possible, were detained in hospital until a complete result had been obtained, because the bulk of them, being illiterate and not ambitious to work more than was necessary, were apt to be content only with a degree of vision which would enable them to walk about readily alone. There were 40 operations on secondary capsules.

Two cases of detachment of the retina were operated on by posterior puncture with an entirely successful result.

With regard to tumours of the orbit, it was occasionally found difficult to obtain consent for their complete removal in those cases where the growth had not yet involved the globe; consequently they sometimes attained most unusual proportions before the necessary assent was expressed, and by then the operation was often no longer useful and sometimes was even impossible.

Harley-street, W.

THE PATHOGENY OF GOUT.[1]

BY SIR DYCE DUCKWORTH, M.D., LL.D. EDIN.,

PHYSICIAN AND LECTURER ON MEDICINE, ST. BARTHOLOMEW'S HOSPITAL; HONORARY PHYSICIAN TO H.R.H. THE PRINCE OF WALES; PRÉSIDENT D'HONNEUR OF THE THIRTEENTH INTERNATIONAL MEDICAL CONGRESS.

IN this effort to elucidate one of the most obscure problems in medicine I begin by declaring that my position is that of the clinical investigator, and that much of my past study respecting gout has been directed to prove what are the exact manifestations of this malady as distinguished from other morbid states often confounded with it. As we shall find, the secret of its precise pathogeny has not yet been wrested from nature by the most skilful masters of chemistry or physiology, although some of our best conceptions of it have issued from these sources. The clinician has much to do in pursuing this inquiry.

In one of the best modern text-books on medicine, that of Professor Osler of Baltimore, it is declared that "the nature of gout is unknown." Is it too much to expect that after our deliberations to-day we shall be able to refute this opinion as well as that of M. Rendu who remarks: "Il est encore impossible de formuler une pathogénie définitive comme de donner une définition exacte et complète de la goutte"?

Without undue presumption I may venture to claim for my countrymen, and especially for the veteran Alfred Garrod, still enthusiastic in the pursuit of knowledge, a creditable share in the elucidation of this recondite subject. I may add that while my country has long been, and still is, a classical soil for gout, there is happily less of it in the acute form than there was a century ago.

In entering on a study of the question before us it appears to be the safest course to state the fundamental facts respecting gout upon which all observers are agreed. We recognise, therefore, in gouty persons a special diathetic habit or proclivity, more marked in some countries and races of men than in others—one which, like other diatheses, may be inherited and transmitted and may also gradually be acquired and modified. Next, we recognise a peculiar condition of the blood which is abnormal in respect of the presence of uric acid (urichæmia); and, lastly, we find in various localities of the body deposits of urate of soda. In any patient presenting truly gouty symptoms we expect to meet with at least the first and second of these conditions. In many cases, however, we can find no ante-mortem evidence of uratic deposit, nor, indeed, do we always find this post mortem. It is further certain that persons may be gouty in various degrees, presenting all varieties from the acute to the chronic forms, including the phases of irregular or incomplete gout.

The primary cause of gout doubtless lies in some constitutional defect of nutrition which permits the development sooner or later of its symptoms. With Noël Guenneau de Mussy I would say that this defect is the veritable disorder —"un trouble profond, primordial, qui a sa racine dans l'ensemble de la constitution et dans la race elle-même." It is in this direction that we have to push our inquiry. The tissues and their intimate modes of nutrition differ in the gouty from those not similarly impressed. What is the nature of this difference?

Many of the most thoughtful students of gout have long been impressed with the fact that gout as a morbid state is not expressed or fully explained by the mere aberrant relations of uric acid in the body. Urichæmia of one variety is certainly a factor in the case, but it is itself the result of an antecedent faulty nutritive metabolism ("le trouble primordial").

In recent years much labour has been expended in the effort to determine the site or sites of production of uric acid in the body but at the present moment the best physiological authorities are not agreed upon this matter. The true solution of this question in regard to gout is probably only to be found by a study of the metabolic processes in the human subject, inasmuch as the origin of uric acid may possibly differ in different animals, and it may conceivably own special and abnormal sources in the gouty subject. Herein lies one of the great difficulties of the problem. Time forbids me to enumerate the different views which are held regarding the sites of formation of uric acid. It will suffice to state that the latest researches point to the kidneys as the organs in which it is alone produced from a conjugation of urea and glycocine, and this view has the support of Garrod, Latham, and Luff, who also maintain that uric acid is never present in normal blood but is always excreted by the kidneys which produce it. Charcot and Murchison regarded the liver as the principal seat of uric acid formation, but the latest researches tend to show that in gouty conditions the liver does no more than supply by undue stimulation an excess of urea and glycocine as antecedents for conversion by the kidneys into uric acid. Garrod and Luff believe that the source of uric acid is the same in the gouty as in healthy persons, but regard the kidneys as inadequate in the former to excrete it. This inadequacy is probably one of the peculiarities of the tissues of the gouty individual. Ebstein presumes as part of the abnormality in these persons a wider field for uric acid production and believes that gouty subjects may form it in muscles and bone-marrow as well as in the kidneys. We wait for proof of these assertions from the eminent professor at this sitting. So far as we know, this renal inadequacy to excrete uric acid normally from time to time is not manifested by any alteration of tissue recognisable by the microscope. It is quite apart from any degree of interstitial nephritis which is apt to supervene in the later stages of gout.

Kolisch of Vienna will tell us to-day that some antecedents or allies of uric acid constitute the *materia peccans* of gout and that certain alloxur bases induce a form of renal degeneration which precedes the development of gout. I think, on the contrary, that the fact of urichæmia in gout is proved and I deny that any recognisable degree of renal degeneration exists in the majority of patients who suffer from regular gout, at all events in the early course of the disease.

So far, then, as gout depends on urichæmia we have to consider whether its manifestations are associated with (*a*) an over-production or (*b*) a diminished excretion of uric acid.

We know that over-production of this acid occurs in some other diseases without including any gouty symptoms, as, for example, in anæmia and leukæmia, and it has been proved that a diminished excretion of it is the rule in gout. Further, it is known that agents which diminish excretion of uric acid tend to induce gouty symptoms in predisposed persons. The latest researches indicate that consequent on renal inability to excrete the uric acid formed in those organs absorption of it into the blood takes place, with liability to gout. Other varieties of urichæmia appear to depend on the transformation of nuclein derived from leucocytes or on the production of uric acid in areas outside the kidneys, and these urichæmic states in no degree determine gout, renal function being adequate. I accept the teaching of Garrod, Roberts, and Luff respecting the condition of the blood in gouty urichæmia. Uric acid is present in the form of a soluble, but unstable, gelatinous quadriurate of sodium. This is non-toxic and gives no evidence of its presence in the system, but it is readily converted by sodium carbonate in the blood into the bi-urate which is a

[1] A paper read in the Section of Internal Pathology at the Thirteenth International Medical Congress, Paris, on August 6th, 1900. The conclusions were published in our issue of August 11th.

[2] Hence may we not affirm with Jaccoud, "Au fond, la goutte est toujours une maladie chronique"?

crystalline and noxious salt. The precipitation of insoluble bi-urate of sodium from the gelatinous quadriurate is apt to occur whenever the blood is surcharged with the latter, and this appears to be coincident with a specific gouty crisis and a localised attack. The crystals thus formed are irritating to any tissue in which they may be deposited.

The greater frequency of gout in persons who take little exercise and habitually consume strong food and liquors in excess of their physiological requirement is to be attributed partly, if not entirely, to the disordered hepatic metabolism thereby induced. Whether uric acid is formed in the liver and other tissues in persons of a gouty habit is, as we have seen, not yet determined. I am disposed to regard with favour the hypothesis of Ebstein that amongst the peculiarities of the gouty subject there may be a tendency to form uric acid in abnormal situations, and to agree further with him in the view that this peculiarity of tissue may be transmitted to the progeny in varying degree, sometimes, perhaps, in a latent condition, but yet capable of being roused into activity by habits of life provocative of gout.

We are here, however, in a region of conjecture, and the nearest point of certainty we can reach for the present is to regard this humoral part of the pathogeny of gout as dependent on a special mode of tissue metabolism inherent in the subject of it, implanted in varying degrees and capable of transmission. This view receives support from our knowledge of cases of what is termed "poor gout," in which we find that the disease is well marked although the patient leads the most prudent and abstemious life. The intimate metabolic fault is present and gouty developments occur without any direct provocation from without. The patient inherits the peculiar defect of his tissues, a degradation, as it were, from the normal condition, constituting, as suggested by Gull, a reversion to a lower animal type of metabolism, a peculiarity, possibly, as Sir William Roberts thought, of a vestigial nature. With Bouchard we may regard it as a "ralentissement diathésique de la nutrition." In the realm of pathology there are doubtless other tendencies and states which are developed and transmitted in like fashion.

The foregoing conceptions are supported by the doctrines applicable to other diathetic conditions. Up to this point, however, the theory laid down is founded on a basic tissue-defect, leading to a purely humoral pathogeny for gout.

This I regard as incomplete and inadequate to explain all the phenomena of gout. We have yet to discuss the relation of urichæmia to the different symptoms of the malady, and in particular the specific determination of urate of sodium to the joints, especially in the earlier stages and the classical form. In my opinion another element has to be considered which materially influences the character of the disease. This is the nervous element and to this we must now direct our attention. I am entirely in agreement with the doctrine of the Parisian school in respect of the arthritic diathesis.[3] This was the original conception, I believe, of Féréol,[4] adopted by Pidoux, G. de Mussy, Charcot, and others, and it is now accepted by some British authorities. The subjects of this basic habit of body are especially prone to suffer from rheumatic and gouty disorders. Under provocation, whether from the *materia peccans* of rheumatism or the urichæmia of gout, the specific manifestations of these states are mainly directed to the articular system. I take note at this point of nervous or neuro-trophic influence, and, encouraged by the analogy of other arthropathic conditions, venture to agree with those who predicate the existence of a nutrient centre for joints situated probably in the medulla oblongata. There are good reasons for the belief that derangement of this trophic centre induces marked changes in joints such as occur, for example, in rheumatoid arthritis or in locomotor ataxia. I believe, then, that the second factor in the pathogeny of gout is a disordered condition or neurosis of this centre whereby the manifestations of the urichæmia are specially determined to the articulations. I also believe that this peculiar neurosis influences the features of rheumatic fever, an infective disorder affecting persons of arthritic habit. In cases of abarticular gout we have to deal with the chronic and irregular phases of the disease and are then in the presence of a gouty cachexia pervading the whole system. ("Totum corpus est podagra.") No careful clinical student of gout can fail to recognise the nervous element in the disorder. The onset of a paroxysm is often due to such influence. The condition of urichæmia grows up, as it were, to saturation. A nerve storm is aroused by mental influences or arises either out of shock, depression, or excitement, and forthwith the crisis occurs and the attack is localised.[5]

Twenty years ago I ventured to submit the opinion that the peculiarities of the gouty habit were altogether the outcome of a central tropho-neurosis. My friend, the late Professor Ball of this school, in reviewing my theory reproached me with "seeking to localise at too limited a point the primordial lesions of a malady essentially general, one which is, and always will be, typical of one of the best diathetic conditions." I now confess that his criticism was just, and an extended study of the subject disposes me to limit the influence of the nervous system more particularly to the phenomena of paroxysms, metastases, and the determination of the sites of uratic deposit. I hold firmly to the idea that none of these occur casually or indiscriminately, but that local conditions of tissues are assigned, under neuro-trophic influences, for gouty manifestations. There must be some directing and determining force in the case. I cannot conceive of such a specific process occurring independently of nervous influence.

Let me remind you that this part of our inquiry is altogether outside the scope of experiment in chemical or physiological laboratories. The clinician has alone to find the key which will disclose this mystery.

I claim therefore for gout a dual pathogeny and speak of it as a neuro-humoral disease. This conception is not new. It was certainly adduced by Sydenham in the quaint terminology of the seventeenth century. Cullen of Edinburgh discarded the humoral side and exclusively developed the theory of the nervous origin of gout. By so doing he long prevented the study of the subject on profitable lines of inquiry. Garrod and the majority of modern investigators have, with rare skill and intuition, developed the humoral theory, and much, if not altogether, discarded the nervous element in the pathogeny of gout. For an adequate explanation of this malady we have to include both the hæmic and the neural elements which present themselves, and this was the doctrine of Laycock, taught 40 years ago in Edinburgh. Time forbids me to enter on multitudinous details of interest and importance in relation to the disease as a whole. I would add that we have to conceive of the gouty habit and tendency as originating and transmitted in varying degrees, as blended sometimes with, and modifying, other diathetic states. Yet it is always specific and ready to assert itself. Some persons are not, and cannot become, gouty, just as some are not, and cannot become, scrofulous.

I believe that the tendency to gout may be originated in persons not disposed to it by habits of life which are known to provoke it, together with excessive nervous exhaustion; and if these conditions fail to induce overt gout in certain individuals they may be potential to influence and modify the trophic processes in their progeny so as to induce gouty manifestations. Unless the descendants of such parents lead very different lives from those of their progenitors they are hardly likely to escape the worst effects of their inheritance, and even when such children lead lives of temperance and activity there may often appear in them the signs of irregular or incomplete gout.

Respecting uratic deposit as a permanent indication of past gout in any part I would express my belief that this is not always to be found. It is most likely to remain in non-vascular tissues, such as cartilage, but even from this and other textures I believe it may be removed in course of time, provided the patient ceases to suffer from repeated attacks. It is also certain that deposits may be formed in abundance without any painful paroxysms of gout. My experience further shows that patients with a tendency to excessive deposits do not always have, as has been alleged, obviously damaged kidneys. There may be only slightly marked interstitial changes. The special features which entail incapacity and inadequacy in the tissues of the gouty subject are, as I have already stated in respect of the kidneys, incapable of detection by histological methods.[6] We only recognise them by the symptoms they induce, and

[3] I also accept the teaching of M. Bouchard respecting the different diatheses.

[4] Some attribute this to Bazin.

[5] "A slight excess of any kind, whether in diet or exercise, will excite the disease in those predisposed to it. When the train is laid an additional glass of claret may have acted as the match, but in all such cases the explosion would have equally taken place had instead of claret some other exciting cause fired it." (On Diet and Regimen, Dr. Paris. London: 1837.)

[6] The same is the case in diabetes mellitus where no histological faults have as yet been discovered but in which a grave metabolic defect exists.

we know that the peculiar metabolism of such persons is morbidly sensitive to impregnation of the system by agents such as iron, lead, or alcohol.

To sum up my conceptions respecting the pathogeny of gout I will venture to affirm:—

That gout as a morbid condition depends on an inherent vice of nutrition, which is manifested by an imperfect metabolism in various organs or parts of the body, presumably in the kidneys and probably in the liver.

That this trophic disorder or inadequacy ("ralentissement de nutrition") leads to the formation of uric acid, probably in excess, and to the periodic retention of it in the blood (gouty urichæmia).

That histology throws no light upon the intimate nature of this defect, which thus relates to cellular potentiality, possibly under neuro-trophic influence, and not, so far as we know, to structural alteration.

That this textural disability, or a tendency to it, may be primarily acquired and also transmitted as a fault, thereby inducing from time to time urichæmia with gouty manifestations in the descendants.

That in most instances, under conditions which provoke it, and in some cases independently of these, attacks of gout may grow up and come to a crisis. Such crises are attended by an alteration in the solubility of the uratic salt in the blood, whereby irritating crystals of biurate of sodium are produced and precipitated in various parts of the body.

That a paroxysm of gout, the sites of its occurrence, and its metastases are determined by nervous influences, probably dominated from a bulbar centre, and that the local attacks alight either in the joints or in textures which have been weakened or rendered vulnerable by impaired nutrition owing to past injury or over-use.

That this central neurosis is an essential and transmissible feature in the pathogeny of gout and pertains to the arthritic diathesis generally.

That the urichæmia of gout is peculiar and unlike that which is induced by other morbid conditions, but that the occurrence of urichæmia in the gouty is by itself inadequate to induce attacks of gout.

That uratic deposits in any part of the body may be removed in course of time but are apt to be permanent in the least vascular tissues.

That uratic deposits may occur to an enormous extent in gouty persons without the occurrence of any pain or paroxysms.

That the clinical features of gout indicate that both hæmic changes (due to inherent morbid tissue metabolism) and a neuro-trophic disturbance act as pathogenic factors, and that consequently gout is to be regarded as a neuro-humoral malady.

DIPHTHERIA IN THE HORSE.

BY LOUIS COBBETT, M.D. CAMB., F.R.C.S. ENG.

(*From the Pathological Laboratory, Cambridge.*)

ON May 22nd, 1900, Dr. A. Mearns Fraser, the medical officer of health of Portsmouth, sent to this laboratory a culture of a bacillus which he had obtained from the nasal discharge of a pony and which had appeared to him to be identical with the bacillus of diphtheria. The history was as follows. A little girl having fallen ill of diphtheria Dr. Fraser, while seeking the source of the infection, found that a pony belonging to the child's father was ill with a purulent and slight sanguineous discharge from its nose. Subsequently the animal suffered from enlargement of the glands under the tongue and laryngeal obstruction, with difficulty of breathing and retraction of the abdominal wall, and a bacillus obtained from the nasal mucus having been pronounced morphologically indistinguishable from the diphtheria bacillus the animal was killed.

The bacillus which I isolated from the culture sent to me had the usual appearance and habit of growth of the bacillus diphtheriæ. It belonged to the short variety. It did not liquefy gelatin, it formed acid in media containing glucose, it clouded beef broth and subsequently cleared it, and, like many diphtheria bacilli freshly isolated from man, it formed only a scanty film on the surface. It was pathogenic to guinea-pigs, causing local hæmorrhagic œdema and the general symptoms which are seen in these animals when they are inoculated with the bacillus diphtheriæ. It formed a powerful toxin, the filtrate from broth cultures causing a little œdema at the seat of inoculation, followed in about 10 days by falling out of the hair in the neighbourhood, widespread hæmorrhagic œdema and necrosis of the tissues immediately affected, or death, occurring sometimes within 24 hours, according to the quantity of poison injected. The effect of injecting large doses of living culture, or even 100 fatal doses of filtrate was completely neutralised by diphtheria antitoxin.

The following experiments were made.

TABLE I.—*Living Broth Culture 24 Hours old.*

Weight of guinea-pig in grammes.	Quantity of		Result.
	Culture in cubic centimetres.	Antitoxin in cubic centimetres.	
290	0·1	0·0	Œdematous swelling about the seat of inoculation. Death on the sixth day.
280	1·0	0·01 = 5·5 units.	Remained well.

TABLE II.—*Filtrate of a Broth Culture Five Days old.*

Weight of guinea-pig in grammes.	Quantity of		Result.
	Culture in cubic centimetres.	Antitoxin in cubic centimetres.	
340	0·1	0	Small œdematous swelling. Recovered.
360	0·5	0	Small swelling following by loss of hair about the seat of inoculation. Recovered.
380	1·0	0	Œdematous swelling. Necrosis. Recovered.
320	5·0	0·01 = 5·5 units	Remained well.

TABLE III.—*Filtrate of a Broth Culture 11 Days old.*

Weight of guinea-pig in grammes.	Quantity of		Result.
	Culture in cubic centimetres.	Antitoxin in cubic centimetres.	
415	0·05	0	Œdematous swelling. Death on the third day.
405	0·1	0	Œdematous swelling. Death on the third day.
400	0·5	0	Œdematous swelling. Death on the second day.
390	1·0	0	Death in 24 hours.
375	2·5	0	Death in 24 hours.
375	5·0	0·01 = 5·5 units.	Remained well.

It will be noticed that the filtrate which was used on June 6th was much less deadly than that which was used on June 26th. The reason, no doubt, is partly that that used on the last occasion was obtained from a culture which had been grown for 11 days, while that first used was obtained from one which had been grown for six days only. But there is also another reason: in the interval the culture had been daily re-sown on beef broth, and had thereby become accustomed to this medium and had come to form a denser pellicle on the surface of the liquid than before. Consequently it is probable that its power of producing toxin had considerably increased.

These experiments put it beyond doubt that the bacillus obtained by Dr. Fraser from the pony was a true diphtheria

bacillus; and I think we may conclude—though at present there is but a single observation—that the horse is liable to nasal and laryngeal diphtheria. The discovery is of practical importance, since it points out a hitherto unsuspected channel by means of which the infection may be carried to man. It is of scientific importance also, because it has a direct bearing on the question of the origin of antitoxin. As is well known the serum of normal man, both adult and infant,[1] and that of the horse which has never been immunised with the diphtheria bacillus or its products, have often the power of neutralising diphtheria toxin[2]; and it has been shown, in the case of the horse at least, that this protective serum unites with toxoids as well as with toxin proper, just as does the serum of an immunised animal—that, in a word, it contains true antitoxin.[3] The diphtheria antitoxin found in man is probably due, as A. Wassermann has suggested, to some previous attack of diphtheria, possibly unrecognised, while that found by Fischl and Wunsheim in the placental blood of infants may have been derived from mothers who had had the disease. Now that the horse has been found to suffer naturally from diphtheria the presence of diphtheria antitoxin occurring naturally in this animal is easily explained.

Professor Ehrlich,[4] however, has suggested another explanation of the natural occurrence of diphtheria antitoxin in man and horses which brings this fact into harmony with his most interesting *Seitenkette* theory of the origin of antitoxin. His argument may be shortly stated as follows: Foodstuffs must of necessity have a chemical affinity for some part of the substance of the cells which they nourish. He assumes that the molecules of the cells have "side-chains," and that the molecules of the food have "haptophoric" groups of atoms, by means of which they bind themselves to these side-chains of the cell molecule. The bacterial poisons and certain other poisons, such as venom, ricin, abrin, &c., also have "haptophoric" groups of atoms in their molecules which enable them to bind themselves to the molecular side-chains of the cells which they destroy. Now the living cells do not possess special kinds of molecular side-chains merely that they may be susceptible to the action of certain poisons; but it happens that the binding groups of each of these poisons are identical with the binding groups of some particular food-stuff, so that the poison is able to act by seizing on to a side-chain hung out, so to speak, to catch food. Experiment has shown that the injection of these toxins, or even of their binding groups alone (toxoids) into animals causes the appearance in their serum of a specific antitoxin; and that the injection of certain food-stuffs also, such as globulin, peptone, &c., produces specific anti-bodies (precipitins) strictly analogous to the antitoxins, in the serum of the animals injected.[5] From this it may be inferred that the injection of a food-stuff which has binding groups identical with those of a certain poison ought to produce the same anti-body as the injection of the poison itself. Thus Ehrlich suggests that diphtheria antitoxin in apparently normal animals is present as a consequence of the assimilation of some food-stuff which has the same binding groups as diphtheria toxin.

I do not wish to enter into any general discussion of, much less to attack, the *Seitenkette* hypothesis, which knits together, and is supported by, so many observations; but I must point out that the fact that the horse may suffer from diphtheria suggests a much easier explanation of the occurrence of diphtheria antitoxin in this animal than that put forward by Ehrlich. Moreover, the fact that all horses do not possess this natural antitoxin is more consonant with the view that it is present in those which have accidentally contracted the disease than with that which attributes it to the assimilation of a certain food, seeing that the food of all horses is so nearly alike. It is hardly necessary to mention that up to the present time no food-stuff has been found the injection of which will lead to the appearance of diphtheria antitoxin, and, so far as I can ascertain, no normal animal, with the exceptions already mentioned, possesses an antitoxin of any kind in its blood.

The fact that diphtheria antitoxin is present in many horses[6] in this country and on the continents of Europe and America suggests that diphtheria is a common disease among these animals; and this is in accordance with the well-known susceptibility of some of them to the action of diphtheria toxin. It is therefore possible that the horse may be found to play a not inconsiderable part in the transmission of diphtheria.

Cambridge.

[1] A. Wassermann: Deutsche Medicinische Wochenschrift, Leipsic, 1894, Band v., V.B., s. 120, and Zeitschrift fur Hygiene, Leipsic, Band xix., s. 403. Orlowski: Deutsche Medicinische Wochenschrift Leipsic, 1895, s. 400. Fischl and Wunscheim: Prager Medicinische Wochenschrift, 1896, Heft 45 and Heft 51, and Zeitschrift für Heilkunde, Berlin, Band xvi., Heft 5 and Heft 6.

[2] Roux and Martin: Annales de l'Institut Pasteur, Paris, 1894, viii., p. 616. Meade Bolton: Journal of Experimental Medicine, New York, 1896, vol. i., p. 543. Cobbett: Journal of Pathology and Bacteriology, London, vol. iii., p. 328. THE LANCET, August 5th, 1899, p. 332. Centralblatt fur Bakteriologie und Parasitenkunde, Jena, 1. Abtheilung, xxvi., s. 548.

[3] Cobbett: THE LANCET; Centralblatt für Bakteriologie und Parasitenkunde, loc. cit.

[4] Croonian Lecture, March, 1900; Proceedings of the Royal Society, London, vol. lxvi., p. 424.

[5] Myers: THE LANCET, July 14th, 1900, p. 98.

[6] Dr. Meade Bolton found it in three horses out of 12 examined by him in Philadelphia. I found it in nine out of 13. Of these 10 came from London and eight of these possessed an antitoxic serum, while the other three lived in Cambridge, and the serum of one only had an antitoxic action. Thus in a limited experience it was present in 80 per cent. of London horses and in only 33 per cent. of Cambridge horses. This corresponds with the much greater frequency of diphtheria in London than in Cambridge. Of course if I had examined another Cambridge horse and found antitoxin the percentage of those containing an antitoxic serum would have jumped to 50. One must, therefore, not attach much importance to this ratio. Moreover, in Meade Bolton's experience antitoxin was present in only 25 per cent. of Philadelphia horses, and diphtheria is twice as common in that town as it is in London.

THE INCREASE AND DISTRIBUTION OF CANCER IN EASTERN ESSEX.[1]

BY GEORGE MELMOTH SCOTT, B.A., M.B., B.C. CANTAB.

SOME 1000 deaths from cancer occurred within the two unions of Chelmsford and Maldon in Eastern Essex between the years 1871–1898 inclusive. This period contained two complete intercensal periods of 10 years each (1871–1880 and 1881–1890) and an incomplete period of eight years (1890–1898). In order to compare the mortality of one period with another it was necessary to calculate this last incomplete period to 10 years—i.e., the figures shown are ten-eighths of the figures of those obtained from the registers. These figures are shown in Table I.:—

TABLE I.—*Total Number of Deaths in each Decade.*

—	1871–1880.			1881–1890.			1891–1900.		
	Total deaths.	Proportion of males to females.	Deaths per 1000.	Total deaths.	Proportion of males to females.	Deaths per 1000.	Total deaths.	Proportion of males to females.	Deaths per 1000.
Persons ...	274	—	4·78	355	—	6·23	447·5	—	7·73
Males	93	51·38	3·22	135	61·26	4·74	203·75	83·59	7·05
Females ...	181	100	6·36	220	100	7·73	243·75	100	8·41

From this we see that the number of deaths per decade increased from 6·36 in the first, to 7·73 in the second, and 8·41 in the third. At first sight this would appear to be conclusive evidence of an increase but further investigation throws doubt upon it, for the same table shows that the increase is largely in the male population, while the female death-rate is much more nearly stationary. Thus to every 100 women dying from cancer in the first decade 51 men died; in the second decade 61 men died to every 100 women; and in the third 83 men to 100 women. A further analysis of the deaths among men is shown in Table II. Here the cases in which the cancer occurred in the lip, the tongue, the throat, the penis, and the testis, easily accessible parts, are separated from those in which it occurred in more deeply-seated organs. Perhaps the same results given in ratio will be more easily grasped and expressed in that way we may state that while in the three decades accessible cancer increased in the ratios of 1·0, 1·6, and 2·4, less accessible cancer increased in the ratios 1·0, 2·2, and 3·5—that is to say, the increase was much more marked in

[1] Abstract of a paper read before the section of State Medicine of the British Medical Association at Ipswich on August 2nd, 1900.

those parts of the body where it could be diagnosed by increased knowledge and skill on the part of the medical men certifying. Furthermore, only of recent years has the Registrar-General inquired as to the nature of the "tumours" and "growths."

On the whole, then, our figures tend to show that there has been some actual increase in the number of deaths due to cancer in the past 30 years, but my own impression is that the increase has been much more marked in the professional skill of the medical men certifying. The object was to test Mr. Alfred Havilland's theory by applying it to this part of the country. This theory postulates that (1) in the counties having a high mortality from cancer we

TABLE II.—*Cancer in Accessible and in Inaccessible Parts of the Body.*

—	1871–1880.				1881–1890.				1891–1898.			
	Males.		Females.		Males.		Females		Males.		Females.	
	No.	Proportion, total = 100.	No.	Proportion, total = 100.	No.	Proportion, total = 100.	No.	Proportion, total = 100.	No.	Proportion, total = 100.	No.	Proportion, total =
External organs.	10	3·6	80	29·2	16	4·4	100	27·7	24	5·3	87	19·4
All other organs.	46	16·8	64	23·4	101	28·0	84	23·3	162	36·1	129	28·8
Not stated.	34	12·4	39	14·2	22	6·1	37	10·2	16	3·5	30	6·7

find that the tributaries of the large rivers rise from soft marshes or other easily-disintegrated rocks and these fall into sheltered valleys through which the main rivers flow; (2) that these rivers invariably flood their adjacent districts during the rainy season and have generally their waters coloured by the suspension of alluvial matter; and (3) that the districts "characterised by the tertiary and more recent clays and other retentive soils have a very high mortality from cancer." In order to test the soundness of the theory we must first get a clear conception of the contour, geology, &c., of the district which we are investigating. This consists of the two unions of Chelmsford and Maldon, the former of which lies to the west of the latter, the two together forming a tract of country extending inland some 25 miles from east to west, while from north to south the distance is roughly from 10 to 15 miles. The district forms an irregular parallelogram, being bounded on the east by the North Sea, on the south by the river Crouch, and on the west by a line running north and south some six miles to the west of Chelmsford. The northern boundary is more irregular. The area of the whole is 175,231 acres. (In future I shall refer to the two unions together as the "area.") In one respect the physical features of the two unions differ markedly, for while the Chelmsford Union is entirely inland and is watered by small rivers only the Maldon Union is cut in two from east to west by the great salt-water estuary of the Blackwater, and is bounded on the south by the very similar estuary of the Crouch. The country lying on each side of these estuaries, and the seashore lying between their mouths, is extremely flat, the water being kept out by sea walls, and the fields intersected with small creeks and ditches, while, as the map shows, in many places there are "saltings"—i.e., land which grows a rough species of grass, although covered with salt water at high tides. This part of the country used formerly to be the home of malaria. The geology of the whole district might fairly be summed up in the one word "clay." Excepting along the course of the rivers and on the seacoast, where there is a deposit of alluvium, the geological map is coloured one uniform tint over the whole area. In the higher parts of the south-western division the clay is capped with beds of Bagshot gravel and sand, while small deposits of a similar character are scattered irregularly and sparsely over a large part of the rest of the area. From this short description it may be gathered that we have to deal with a district in parts of which, at all events, one would presume a very high cancer mortality, if Mr. Havilland's theory be correct. I shall now proceed to put this presumption to the test.

The report of the Registrar-General for the period 1881–1890 shows that the cancer death-rate for Essex is by no means high, although the soil of the county is largely clay, and although it bounds large estuaries and contains considerable tracts of low-lying land. Yet there are 32 counties in England and Wales with a higher mortality from cancer, as against 13 with a lower. This alone would tend to show that the geographical peculiarities of the county are not such as to promote the disease, and Table III.

TABLE III.—*Death-rates per 1,000,000 calculated to Standard Population—1881–1890.*

Areas.	Ages and proportion of persons.						Totals.
	25–	35–	45–	55–	65–	75–	
England	189	665	1311	1644	1393	524	5746
Essex	169	521	1140	1578	1410	619	5437
The two Unions ...	147	608	959	1231	1236	642	4823
Chelmsford Union ...	208	603	1089	1204	1306	696	5106
Maldon Union ...	54	613	781	1266	1137	566	4417

emphasises the point, for there we see that not only is the cancer death-rate of Essex below that for England, but the rate for these two unions with their large amount of foreshore is below that of the county as a whole, and yet, further, the rate for the Maldon Union, which is bounded by two large estuaries and contains large marshes and saltings, is below that for the drier union of Chelmsford.

If now we divide up our area into smaller units we arrive at some interesting results. In order to eliminate error as far as possible the whole area has been divided into parishes and groups of parishes in such a way that the population in each group shall not be less than 1000 and the death-rate has been estimated from the returns for the years 1871–1898. Time will only allow me to give an outline of the results. The highest mortality (8·9 to 8·02 per 1000 per decade) occurs in the Waltham and Purleigh groups. Of these, Great Waltham is situated in the extreme north-west part of our area. The soil consists entirely of clay, which rises in one part to a height of 230 feet above mean sea-level, and is nowhere less than 130 feet. It may be considered a fairly elevated parish. Through it runs the Chelmer, which is here little more than a brook, but such as it is the houses are mostly aggregated in its vicinity. The floods in this and other parts are seldom serious, as the rainfall rarely exceeds 25 inches per annum. The Purleigh group also lies fairly high, a large part of the surface being above the 100 feet contour, while it rises in one part to 170 feet. The village of Purleigh comprises by far the largest collection of houses within the group and is situated on a sharp slope. The low-lying part of the parish is liable to be flooded when Purleigh Wash is swollen by very heavy rains, but there are few houses in the vicinity. The lowest mortality occurs in the groups of Tollesbury and Wickham Bishops. Tollesbury (with the lowest death-rate of all) is extremely flat, the village being situated at an elevation of 85 feet only. The outline of the parish is roughly triangular, two sides of the triangle being formed by muddy foreshore, creeks, and saltings; more than half the parish is under water at high tide; there are no fresh-water streams. In contrast with the above is the Wickham Bishops group. Here the largest collection of houses is the village of Wickham itself, situated on a patch of gravel at an elevation of 230 feet, the village church forming a conspicuous landmark. Although the (fresh water) river Blackwater, which is liable to floods, bounds the group on one side, yet there are very few houses in the vicinity of the water. But the most striking differences in cancer mortality under closely similar circumstances are shown in the contiguous groups of Burnham and Southminster. Both include saltings and a large extent of marsh land; one has a long frontage to a tidal river, the other a (shorter) frontage to the low seashore. In both the majority of the inhabitants live in small towns. And yet, although Burnham town is on the banks of the river and Southminster town is situated at a distance from the water the former has a low mortality and the latter a high.

These six instances serve to illustrate the results shown throughout the entire area—viz., that in this part of Essex cancer death-rate bears no evident relation to the variations in the physical features of the country.

Assuming the truth of Mr. Havilland's theory we should expect, if anywhere, to find a high cancer mortality along the course of our rivers, for although they cannot be said to

be subject to very frequent flood or yet to run through very sheltered valleys, yet they rise from, and run through, retentive soil and overflow their banks whenever the rainfall is especially heavy. The facts of the case, however, tend to point to an opposite conclusion for those groups which lie on the banks and shores of our rivers and estuaries have with only one exception a death-rate below the average of the whole area.

Taking first the river Crouch we have already seen that in the Burnham group, situated at the mouth of the estuary, the mortality is low (4·24 per 1000). The groups to the west of this latter are those of Latchingdon, Stow Maries, and Runwell, with death-rates of 4·96, 4·71, and 3·96 per 1000 respectively, all of which are decidedly below the average of 6·70 per 1000. The proximity of the river Crouch, therefore, cannot adversely affect the cancer mortality in its neighbourhood. And the same conditions obtain with respect to the river Blackwater, the north bank of which is formed from east to west by the groups of Tollesbury (a small slip of Tolleshunt d'Arcy), Goldhanger, Langford (Hatfield), Boreham, and Springfield. These have mortality rates of 3·41, 4·99, 5·56, 7·86, and 4·54 per 1000, all of which are below the average, with the exception of that for Boreham. On the south bank of the river lie the groups of Bradwell, St. Lawrence, Latchingdon, Maldon, Woodham Walter, and Little Baddon, with death-rates of 6·64, 5·43, 4·96, 6·14, 4·70, and 6·26 per 1000, all of which, again, are below the average of the whole area, although somewhat higher than the rates which obtain along the north bank of the river.

If, then, we may attach any weight to the results of this inquiry we must look for the causes of cancer in some other direction than in an alluvial and clayey soil, subject to floods, for, to sum up, (1) the disease is less common within the county of Essex, with its clay soil and numerous estuaries, than it is in England as a whole; (2) although the unions of Chelmsford and Maldon contain an excessive proportion of marshy land and estuary yet their death-rate is below that of the county; (3) those parts of the two unions which include the greatest extent of muddy foreshore, creek, and saltings have a mortality below that of the two unions taken together; and (4) the disease is not especially prevalent in those places which are situated on the banks of the fresh-water rivers.

Witham, Essex.

THE MICROSCOPIC APPEARANCES OF THE MOTOR GANGLION CELLS IN FIVE CASES OF PERIPHERAL NEURITIS.

BY WALTER K. HUNTER, M.D., B.SC. GLASG.,

ASSISTANT PHYSICIAN TO THE GLASGOW ROYAL INFIRMARY AND EXTRA PHYSICIAN TO THE ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW.

(From Dr. J. Lindsay Steven's Wards in the Glasgow Royal Infirmary.)

THERE now seems to be little doubt that motor ganglion cells undergo certain histological changes as a result of injury to their peripheral terminations. The investigations of Nissl, Marinesco, Lugaro, Van Gehuchten, and others have established this as being beyond dispute. Nissl tells us that after injury to a nerve chromatolytic changes appear in the ganglion cells within 24 hours and that by the end of from seven to 14 days these changes have become very marked. They reach a maximum from the twentieth to the thirtieth day and remain stationary at that for some time. In many of the cells recovery takes place, due either to regeneration of the nerve or to the tonic or trophic influence of adjacent or other ganglion cells, so that at the end of about from two to three months it is difficult to recognise these cells as having at any time been abnormal. Certain cells, or groups of cells, however, do not recover, but, on the other hand, undergo complete atrophy and disappear. It seems established, then, that even as by Waller's law degeneration of a nerve-cell causes degeneration in its nerve-fibre, so injury to the nerve-fibre causes corresponding changes in the nerve-cell. This leads to the discussion as to whether the poisons causing peripheral neuritis affect directly the peripheral nerve-fibres or act by first poisoning its nerve-cell—whether, in other words, the peripheral part of the neuron displays a certain independence in presence of certain morbid processes or that a degeneration of nerves means a primary lesion, or at least some primary dynamic trouble in the cell, seeing that the cell constitutes the central part of the neuron. The question is difficult and it has led to much dispute. The truth would seem to be that the trophic function does not reside in one single part of the neuron but that the vitality of the whole depends on the vitality of each constituent part. The poison in peripheral neuritis being in the circulation will reach the whole neuron, and while it affects the vitality of the whole it is in its most outlying part—the distal end of the axon—that the histological changes are first recognised. That it is the peripheral part of the neuron which is chiefly or wholly so affected has been demonstrated in numerous cases of peripheral neuritis, for it has been shown in these cases that the proximal portions of the nerve, the nerve-roots, and in some cases the ganglion cells themselves, have remained apparently unaltered.[1] The onset, moreover, of the paralysis in the extremities of the limbs points to the conclusion that it is not only the terminals of the neurons but the terminals of the longest neurons that first show disintegration and are first to lose the power of conduction. It is not, however, the purpose of this paper to discuss in detail the pathology of peripheral neuritis, but rather to furnish an account of the microscopic examination of five cases of that disease, contrasting the appearances they present with those already referred to as having been produced experimentally in animals.

The spinal cord was examined in all the cases, but only in the last three could the medulla and pons be obtained. The cords and medullas were fixed and hardened in formol (10 per cent.), embedded in celloidin, and stained with (*a*) theonin, and (*b*) hæmatoxylin and eosin. The nerves examined were the median and radial in the arms, the anterior and posterior tibials in the legs, and in two cases the right vagus at the level of the clavicle. The terminal fibres of these nerves were chosen by preference for examination and many terminals in each nerve were examined. They were fixed and stained in osmic acid (1 per cent.) and the individual fibres carefully separated from each other in xylol. The anterior roots, which were fixed along with the spinal cords in formol, did not stain so as to show their myelin, but in the roots of the first three cases the axis cylinders and cone-like framework of the myelin could be made out to be intact, and I take it, therefore, that these roots had undergone little degenerative changes. Of the anterior roots in the other two cases I can give no opinion.

CASE 1. *Alcoholic neuritis affecting the lower limbs and associated with tuberculous pleurisy and peritonitis.*—A man, aged 30 years, a clerk, was admitted into the Glasgow Royal Infirmary on April 21st, 1899. The patient dated his illness from a sudden attack of breathlessness about six weeks before admission. He was going up stairs at the time and it was with considerable difficulty that he could get to his room. Since then he had been more or less constantly confined to his bed, the dyspnœa being at times very troublesome. Excess in alcohol for many years was freely admitted. On admission the patient was seen to be very ill. There was evidence of a large quantity of fluid in the left pleural cavity. There was double foot-drop and very little voluntary movement even in the flexor muscles of the feet and legs. Tactile sensation, as far could be made out, was not involved, but the muscles of the feet and legs were painful on pressure. A bed-sore was present over the left trochanter. Dyspnœa was urgent. He died on the 27th.

At the necropsy the left pleural cavity was found to contain a large quantity of blood-stained fluid. Both surfaces of the pleura were studded with tubercles. The left lung was completely collapsed but otherwise healthy. The right lung was œdematous but free from tuberculous disease. The heart muscle was soft and pale. The omentum was much thickened and infiltrated with tubercles. The peritoneum was also studded all over with numerous small tubercles. The liver, spleen, kidneys, and alimentary tract appeared to be healthy, but there was evidence of atheromatous changes in the vessels. Microscopic examination of the nerves in the feet showed a well-marked parenchymatous neuritis. Scarcely a normal fibre could be found, and in many of the fibres the coagulated myelin had entirely disappeared, leaving nothing but the sheath and its nuclei.

[1] Allbutt's System of Medicine, vol. vi., pp. 685 and 715.

The cord was examined at 19 different levels—viz., seven cervical, six dorsal, five lumbar, and one sacral. In the last of these (the upper sacral segment) the appearances were most interesting. Scarcely one single normal cell could be found and yet in none had the changes caused a complete disintegration of the cell structure. There were examples of all the different stages of chromatolysis, from the almost normal cell to the faint and almost invisible "ghost cell." In about half of the number of cells the Nissl bodies had become fragmented, giving the plasma of the cell a powdered appearance, but these fine powdered granules still stained with considerable intensity. In the rest of the cells the granules were evidently disappearing, first from around the nucleus, then on towards the periphery till some cells had only a narrow outer rim of these fine granules, the rest of the plasma being pale. There were a certain number of typical "ghost cells," but they were not numerous. The nucleus seemed affected in only a small percentage of the cells and in these it had become peripheral. Yellow pigment was found in about 25 per cent. of the cells, but it was small in amount, very faint in colour, and seemed to be made up of unusually fine granules. Indeed, unless under a high-power lens this pigment had the appearance of a diffuse yellow stain rather than of a granular deposit. In the lumbar region the appearances were much as above described, possibly more pronounced, more cells having undergone complete chromatolysis. It is also to be noted that in the lumbar region the postero-lateral group of cells seemed more affected than the anterior or antero-lateral groups. In the dorsal, and possibly in the upper lumbar, segments the ganglion cells were practically normal. A few cells in the centre of the anterior horns were paler than normal and showed some fragmentation of their granules, but the anterior cells (medial and anterior groups) were almost invariably normal. Of the cells in the lateral horn (intermediate group) it is difficult to speak with certainty as they are normally small and their appearances are not too well defined. In the uppermost cervical segments the conditions were as in the dorsal region. Throughout the cervical enlargement the degenerative changes in the anterior and lateral groups were even more pronounced than those found in the lumbo-sacral cells. In most of these cervical cells the fragmented granules had entirely disappeared, leaving the cells ghost-like, and in many the nucleus was peripheral. It is to be noted, however, that the small inner or medial group of cells were practically unaffected by these changes. It is difficult to speak with certainty as to whether or not the degenerative processes above described had caused the loss of a certain proportion of ganglion cells, but examination of many normal cords convinced me that in this case there had been no such destruction of cells. A number of sections from various levels were stained with hæmatoxylin and eosin, but beyond showing an undoubted colloid degeneration in the coats of the vessels there was no other abnormality to record.

CASE 2. *Typical case of alcoholic neuritis affecting both arms and both legs.*—A woman, aged 42 years, was admitted into the Glasgow Royal Infirmary on Oct. 16th, 1899. The patient stated that she was in good health up to five weeks before admission. The first symptoms complained of were feelings of "pins and needles" in the feet and legs, which gradually extended up to the middle of the thighs. Two weeks later the same sensations were experienced in the hands and arms. Loss of power in the arms and legs subsequently developed. There was a history of alcoholism extending over the past three years. On examination a well-marked wrist-drop was found to be present, the paralysis of the extensors of the wrists and hands being complete. The flexors were also involved but to a less degree. The movements at the elbow were all fairly good. There was double foot-drop. The patient could draw up her knees but she was unable to raise the feet from off the ground. There was some slight voluntary movement in the toes, but there was no movement at the ankle-joints. The prickling sensations were still complained of in the arms and legs, but careful examination could detect no definite impairment of the tactile, thermal, or pain senses. The knee and plantar reflexes were absent. There was no heart lesion and the respiratory movements were normal. There were incontinence of urine and fæces. The patient died on the 26th.

The necropsy was practically negative as regards macroscopic appearances. The lungs were somewhat congested and the liver was large and fatty, but the heart, kidneys, and spleen all looked quite normal. There was no atheroma noted in the vessels. On microscopic examination nerve-fibres from the arms and legs showed a very marked parenchymatous degeneration. Very few normal fibres could be found and the degenerative change was equally marked in the arms as in the legs. The cord was examined at 12 different levels—viz., three cervical, six dorsal, two lumbar, and one sacral. The appearances here corresponded closely to those found in Case 1, but they were more pronounced. In the sacral and lumbar regions there were almost no normal cells and those that did exist were situated in the most anterior part of the lateral groups. Most of the cells were "ghost cells," a few had the powdery granulation, and a certain proportion showed a complete disintegration of the cell plasma, there being in these not only loss of Nissl's granules but also absence of nucleus, and, indeed, of any internal structure whatever. In many of the cells the nucleus was peripheral. In the cervical enlargement the changes were similar to those in the lumbo-sacral, but they were more pronounced, there being more cells with peripheral nucleus and more with disintegration of their cell substance. But here again, as in Case 1, the median group of cells was practically normal. The cells of the dorsal region were normal except at the lowest segment, where in the lateral group there was a certain proportion of chromatolytic cells. The yellow pigment in this case is worthy of note. It was very abundant at all levels of the cord. Nearly every cell contained some pigment and at least half the cells had half their plasma occupied with the pigment granules. Many cells were entirely filled with it and it is to be noted that healthy cells were as much (if not more) pigmented as chromatolytic cells. The pigment granules in this case were larger and deeper in colour than those in Case 1. There was no apparent diminution in the number of ganglion cells at any of the levels. The sections stained with hæmatoxylin and eosin showed some small hæmorrhages, dilated vessels (especially veins and capillaries), and a well-marked colloid degeneration in the vessel walls.

CASE 3. *Alcoholic neuritis involving chiefly the lower limbs.*—A woman, aged 40 years, was admitted into the Glasgow Royal Infirmary on June 15th, 1899. The illness began about six weeks before her admission into the infirmary with a feeling of burning heat in the toes of both feet, and this gradually spread upwards as high as the knees. There were no subjective abnormal sensations in the hands or arms. For a fortnight before admission there was difficulty in walking. Sickness and vomiting persisted during the illness. For some years the patient had taken alcohol to considerable excess. She was in the habit of having quantities of whisky every day and of being intoxicated two or three times a week. On examination no definite paralysis could be made out in any of the muscles of the hands or arms, but the grasp in each hand was distinctly feeble. The loss of power in the legs was more apparent, though here again there was no complete paralysis, and the patient could stand without support, but not without staggering. Sensation was normal except for a dulling of the sense of pain on the dorsum of the right foot. There were no mental symptoms. The pupils were unequal, but they responded normally to light and accommodation. The patient died on July 4th.

At the necropsy the various organs were found to be healthy except the kidneys, which showed a commencing interstitial nephritis. Microscopic examination showed a well-marked parenchymatous degeneration in the nerves of the arms and legs and in the right vagus. This was perhaps most marked in the vagus and least in the arms, but in none of the specimens were many normal fibres to be found. The cord was examined at 15 different levels—viz., three cervical, eight dorsal, three lumbar, and one sacral. In the lumbo-sacral segments in almost all the cells there seemed to be a slight fragmentation of the Nissl bodies, though in none was this so extreme as to give the powdery appearance described in Case 1 and Case 2; indeed, the granules in this case were not so much lessened in size as that their shape was ill-defined, and they and their surrounding plasma seemed too deeply stained. About a third of the cells, on the other hand, were unduly pale, but this seemed to be caused not so much by an absence of chromatic granules as by these granules staining with less intensity than normal. It is to be noted, further, that these changes were more marked at the periphery of the cell than

round the nucleus and also that the cells of the postero-lateral groups seemed more affected than the cells more anterior. In the cervical enlargement the appearances were much the same, with perhaps a rather larger proportion of pale-staining cells. In the dorsal region there was practically no chromatolytic changes. Pigmentation was quite as abundant as in Case 2. As compared with Case 1 and Case 2 there seemed to be a smaller number of cells in the anterior horns, especially in the lumbar and sacral segments, but it is difficult to be sure that this is due to atrophy of a certain proportion of cells. A similar examination to the above was made of the motor nuclei in the medulla and pons, but there were no definite changes to be recorded. The pigmentation here, as in the cord, was extreme. The Nissl bodies, too, were rather ill defined, but there was no well-marked chromatolysis to be made out. It is to be noted that the cells in the motor nucleus of the tenth nerve were no more affected than those in the nuclei of the twelfth nerve, the eleventh nerve, and the seventh nerve. As in the last case, the vessels were dilated and their walls showed the colloid degeneration. There were no hæmorrhages and no perivascular dilatations or exudations.

CASE 4. *Alcoholic neuritis affecting the lower limbs ana complicated with tuberculous pleurisy.*—A man, aged 42 years, was admitted into the Glasgow Royal Infirmary on Jan. 11th, 1900. He was first conscious of loss of power in the legs a month before admission to hospital, but he had complained of pains in his feet for a much longer period. For three years he had been most intemperate in his habits and during that time he had at least one attack of delirium tremens. On examination the lower limbs were found to be completely paralysed, their muscles being wasted and very flabby. There seemed to be loss of sensation in the legs, but the patient's speech was thick and indistinct and one could not be certain as to the accuracy of his answers. There was a small bed-sore over the sacrum. The knee reflexes and plantar reflexes were abolished. There was no paralysis in the hands or arms. The pupils were normal; occasionally slight divergent strabismus was to be observed. The patient died on the 12th, within 30 hours after admission.

At the necropsy the right pleural cavity was found to contain a considerable quantity of fluid and its lining membrane was studded with tubercles. The right lung was collapsed and on section there were seen to be several small tuberculous cavities scattered throughout its lower lobe. The left lung was congested and œdematous. The kidneys showed the appearances of commencing interstitial nephritis. The other organs seemed healthy. Microscopic examination of the nerves of both arms and both legs, as well as of the vagus, showed an undoubted parenchymatous neuritis. The condition was most marked in the vagus and about equally marked in the nerves of the four limbs. The cord was examined at 17 different levels—viz., five cervical, eight dorsal, three lumbar, and one sacral. In the lumbar enlargement almost all the cells showed a certain degree of chromatolysis and in the vast majority of the cells this consisted of a fragmentation of the Nissl bodies into smaller granules. These granules stained deeply and only a few cells could be found from which the granules had disappeared. In the sacral region (third sacral segment) the appearances were much the same, but a smaller proportion of cells was affected. The above changes were no more marked in one group of cells than in another. In the upper lumbar region (second lumbar segment) about half the cells in the lateral groups showed this fragmentation of their granules, the remaining cells being practically normal. As in the other cases, the cells in the dorsal region remained unaffected unless for a few solitary cells in the centres of the anterior horns. In the cervical enlargement the appearances were much the same as in the lumbar, only more pronounced. Many of the cells had lost their granules, some had peripheral nucleus, and some showed no internal structure whatever. As far as could be made out the changes seemed to begin round the nucleus and progress towards the periphery of the cell. As compared with Case 1 and Case 2 the chromatolytic changes here were not so well marked, but as compared with Case 3 much better marked. There was a considerable amount of yellow pigment present in the ganglion cells. It was most abundant in the cervical region, where, indeed, the cells were almost as much pigmented as in Case 2. There was little pigment in the dorsal region and a moderate amount in the lumbo-sacral regions. There was no apparent diminution in the number of cells in any of the segments examined. Sections were made at seven different levels of the medulla and pons, but there were no well-marked changes in the motor nuclei to be recorded. In the nucleus ambiguus many of the cells showed a certain degree of fragmentation of their granules and some cells were distinctly pale. But the other nuclei examined (the twelfth, the eleventh, and the seventh) seemed quite normal. The vessels throughout the pons, medulla, and cord showed a well-marked colloid degeneration in their walls.

CASE 5. *Chronic interstitial nephritis in a patient who a year before had been affected by lead-palsy.*—A man, aged 40 years, a house-painter, was admitted (for the second time) into the Glasgow Royal Infirmary, on Jan. 19th, 1900. This patient first came under observation in December, 1898, with lead paralysis affecting the right hand and wrist of two months' duration. On examination he was found to have marked atrophy and flabbiness in the extensors of the right forearm, but the flexors of the supinator longus did not seem involved. There was but slight power of extension in the fingers and wrist. The dynamometer registered 10 kilogrammes in the right as against 35 kilogrammes in the left hand. The patient complained of shooting pains along the radial aspect of the arm but there was no other affection of sensation. The legs were unaffected and the knee-jerks were quite active. The man had worked with lead for 28 years and during most of that time he had suffered with cramps and colicky pain in the abdomen. He was moderate in the use of alcohol. There was a mitral regurgitant lesion and evidence of some chronic renal disease. He was dismissed after a month's residence in hospital very much improved, but he was re-admitted a year later as suffering from a well-marked interstitial nephritis and in a very feeble condition. By this time the paralysis had almost completely disappeared, though when at work there was still difficulty with some of the muscles of the right hand. The dynamometer now registered 25 kilogrammes in the right and 26 kilogrammes in the left hand. Signs of uræmic poisoning subsequently developed and the patient became comatose and died on the 22nd.

At the necropsy the left ventricle was seen to be greatly hypertrophied and the mitral curtains to be the seat of old-standing disease. The lungs were adherent from former pleurisy but otherwise healthy. The kidneys showed well-marked interstitial nephritis. The other organs were healthy. Microscopic examination of the nerves of both arms showed undoubted parenchymatous neuritis. The vagus and the nerves of the leg were not examined. The cord was examined at 15 different levels—viz., seven cervical, seven dorsal, and one lumbar. No definite chromatolytic change was to be found in any of these segments and the cells in the cervical seemed to be as healthy as those in the dorsal region. In the cervical enlargement the large ganglion cells possibly were smaller than normal, there seeming to be a larger proportion of the smaller cells than one usually sees, but this may have been the result of fixing, for the condition was no more marked on the right than on the left side of the cord. There was a large amount of yellow pigment in the cells, quite as much as in Case 2 and Case 3. The motor nuclei of the medulla and pons were likewise examined, but otherwise than the pigmentation there was no abnormality to record. The vessels in this case, as in the four former ones, had a colloid degeneration of their walls, and the veins and capillaries were greatly congested.

In dealing with the various appearances found in these five cases we must first consider the meaning of the changes in the peripheral nerves. In three of the cases it will be seen that although there was but slight loss of power in certain of the muscles there was well-marked neuritis in the corresponding nerves. In Case 3, for example, there was only slight impairment of muscle power in the arms and legs; in Case 4 there was no loss of power in the arms; and in Case 5 the paralysis in the arm had practically disappeared some time before death. But in my experience it is not uncommon to find changes in certain nerves when there is no apparent paralysis in the corresponding muscles. I have seen this in cases of beri-beri and also in cases dying from certain suppurative diseases. In Case 1 and Case 4, in both of which the patients died with an acute tuberculous affection, one would not be surprised to find such an alteration in the nerves. The same might also apply to Case 5, where the cause of death was interstitial nephritis. In this last case, ever

although there had been no regeneration in the nerves following the lead palsy, the parenchymatous changes certainly suggested a much more recent degeneration than the history of the paralysis would make one expect, for we look for the myelin to have more or less completely disappeared from the degenerated nerve-fibre by the end of from three to four months. The report of this case, however, tells us that the lead paralysis had appeared more than a year before. In view of these considerations I much regret that the nerves in the five cases were not examined over a wider area of the body, and also that the nerves in the arms and legs were not investigated at their more proximal as well as at their distal ends; but when the post-mortem examinations were made the cases had a different interest from what they now have and there was then no thought of gathering them together into such a series as this. It is also a matter for regret that the nervous symptoms, especially in regard to the electrical reactions, were not more carefully investigated; but in at least three of the cases the neuritis was only a complication of much more serious conditions, and, indeed, the patients were too ill to permit of detailed examination.

As regards the appearances in the motor ganglion cells, Case 1, Case 2, and Case 4 all show chromatolytic changes corresponding more or less closely to those found in animals following injury to a peripheral nerve. If we may consider the duration of the symptoms in these three cases as any indication of the duration of the changes in the cells we may judge the chromatolysis to have been present from six to seven weeks, a period at which, according to Nissl's experiments, the cells would probably soon begin either to regenerate or, I suppose, to undergo atrophy and disappear. In none of the cases could I be certain that any of the chromatolytic cells had become swollen and in the condition described as the first stage of regeneration. Many of the cells were large, but if larger than normal their powdery granules, though quite deeply stained, were still perfectly discrete. In Case 2 some of the cells seemed to have gone beyond recovery, for they showed complete absence of internal structure, the cell plasma being homogeneous throughout. We must here again note that in Case 1 and Case 4 there was no paralysis observed in the muscles of the arms (so much so that in Case 1 no arm nerve was kept for examination), and yet the changes in the cells of the cervical enlargement were even more marked than those in the lumbo-sacral. It is to be recollected, however, that though there were no symptoms of paralysis in the arms in Case 4 the arm nerves showed undoubted neuritis. In Case 3, where such symptoms as these pointed to the duration of the neuritis being a little over two months, the appearances in the lumbar and cervical enlargements were not nearly so marked as in Case 1, Case 2, and Case 4. The condition of the cells certainly suggested a variation from the normal, but as to whether this indicated an early stage of degeneration or a later stage of regeneration I can offer no opinion whatever. In Case 5, if the motor cells in the cervical enlargement were at any time chromatolytic they had completely recovered, and although the nerves of the arm showed degeneration, as has already been pointed out, this is probably a different neuritis from that caused by the lead poisoning, from which, as the history of the case shows, the nerves must have almost completely recovered.

It has been claimed that the chromatolytic changes in the nerve-cell vary according as the injury is applied to the peripheral nerve or direct to the cell itself.[2] In the one instance the fragmentation of the granules is said to be first seen at the periphery of the cell and in the other round the nucleus of the cell. It is said that after section of a nerve fragmentation begins in the Nissl granules at the part of the periphery from which the axon takes origin. If this be so the chromatolysis in Case 1, Case 2, and Case 4, which seemed undoubtedly to be first perinuclear, would not point to the poison acting first on the peripheral nerve but on the ganglion cell. In Case 3, on the other hand, it was the periphery of the cell that seemed the more affected.

In considering the grouping of the cells in the anterior horns we find that the changes in some groups were much more marked than in others. In all the cases the inner or medial group remained practically unaltered right through its whole length in the cord. This is quite what we look for and it bears out the teaching that cells of the medial group are commissural and do not send their axons into any of the anterior roots. Of the lateral groups it is not possible to speak with so much assurance. In the dorsal region where the lateral cells were fused with the medial groups, they remained quite normal, but in the cervical and lumbo-sacral enlargements it was usually in the postero-lateral sub-group that the degenerative changes were most marked. This, again, is what we look for, as it is this group that has been found most affected in the experimental work already referred to, and it is in these postero-lateral cells that the greatest amount of atrophy is found in cases of old-standing amputation.[3]

It is difficult to give a definite opinion as to whether or not there was any diminution in the number of the ganglion cells. It was only in Case 3 and Case 5 that this seemed at all possible—at least, judging from the number of cells in the other three cases. None of the sections were stained by Marchi's method and so there was not the evidence of degenerated axons to help one to draw conclusions.

It will be observed that no reference has been made in any of these cases to the condition of the cells in the posterior horns. It would be a matter of great interest from the clinical point of view to be able to estimate the effects on the motor ganglion cells of neuritis in the corresponding sensory fibres. There seems little doubt that degenerative changes supervene in motor cells, especially those of the postero-lateral group, as a result of section of the afferent nerves and this is much more extreme and rapid when both anterior and posterior roots are divided.[4] May it not be that recovery in the motor cells in cases of peripheral neuritis depends to a certain extent on the implication or otherwise of the sensory fibres? In none of the five cases were the sensory symptoms well marked, and as neither the posterior roots nor the posterior root ganglia were examined I can have no data from which to draw conclusions, and I have also left out of consideration the posterior horn cells.

As to the significance of the yellow pigment in the ganglion cells something must be said, and yet it is difficult to deal with it in anything like a satisfactory or convincing manner. In four of the cases this pigment was very abundant. It was found to some extent in nearly every cell, it completely filled some of the cells, and in at least half the cells it occupied half their cell plasma. It seemed to be rather more abundant in what we may call the healthy cells, though it was also found in considerable quantity in those undergoing chromatolytic changes. It has been said that this pigmentation is a degenerative change and again that it is the result or expression of the functional activity of the cell. Possibly it is both. We know that the deposit of yellow pigment takes place at the expense of the Nissl bodies which it would seem disappear before the increasing pigment. Indeed, the process of pigmentation seems to cause a certain fragmentation of the chromatic granules, as can be seen with a high power lens on examining the line of contact between the chromatic and pigment granules.[5] If this be so, pigmentation becomes another form (if a very chronic form) of chromatolysis; and if the chromatic granules represent the functional potentiality of the cell, either in the form of nutrition or as energy, or as both of these combined, the destruction of these granules must mean a degenerative change, even if it be the result of an increased activity in the cell. If this pigmentation, then, is a chronic degenerative change we find a corresponding change in the vessels, for in the whole five cases there was found to be a colloid degeneration in the walls of the smaller vessel throughout the whole nervous system whenever examined.

In conclusion, I have to acknowledge the courtesy of Dr. J. L. Steven and Dr. G. S. Middleton, physicians to the Glasgow Royal Infirmary, for permission to put on record the above cases. I am likewise indebted to Dr. Workman, pathologist to the Glasgow Royal Infirmary, who so kindly placed at my disposal their pathological material. For a full bibliography see "Normal and Pathological Histology of the Nerve-Cell," by Dr. Ford Robertson, *Brain* Summer Number, 1899; and Dr. Barker's "Nervous System."

Glasgow.

[2] Barker: The Nervous System, London, 1900.

[3] Warrington: Journal of Physiology, June, 1898, and August, 1899.

[4] Ibid.

[5] "A Case of Gastric Tetany, with an Account of the Microscopic Appearances found in the Medulla and Spinal Cord," Glasgow Hospital Reports, 1899.

SOME NOTES ON 100 CASES OF ENTERIC FEVER TREATED AT NO. 6 MILITARY GENERAL HOSPITAL, NAAUWPOORT, SOUTH AFRICA.

BY DERWENT PARKER, M.B. CANTAB.

THERE can be no doubt that the observation of a large number of patients suffering from the same disease at the same time gives opportunity of noting certain points which would probably be missed, or the observation be regarded as too uncertain to be worth publication, if the cases were isolated and seen at longer intervals. This is my reason for publishing, while still fresh, not only certain facts about my patients but also certain impressions which I have formed as regards their treatment. The patients were all strong young adults, which probably explains to some extent the different complications to which they were liable.

One of the first points noted was the great difference in the virulence of the attack according to the district from which it came. The cases from the Modder river, Norval's Pont, and Rensburg, and the districts about Rensburg and Arundel have almost all been of a severe type. But although there were great varieties according to the district in which the fever was contracted the general climatic conditions or some other factor have caused a progressive weakening of virulence and, on the whole, the later cases, no matter where they came from, have been milder than those of an earlier date. Though the average case was certainly more mild than the average cases seen either in the London general or the fever hospitals, and many cases were diagnosed as enteric fever which would not have been recognised as such in the absence of an epidemic (and these factors will certainly tend to improve the general statistics), on the other hand the most severe cases were infinitely more severe than anything I have seen in England. One patient had seven distinct perforations. Two others, if they had lived a little longer, must have had a still larger number, as every Peyer's patch of the last few feet of the small intestine was indicated by a grey-green gangrenous patch, clearly marked out on a red intestinal wall. These patches could be seen on the external surface of the intestine equally well as on the internal. Although both cases were well on in the third week of their illness, and indeed by the history one should have been in his fourth week, their temperature charts showed none of the hectic character indicating septic absorption, and their Peyer's patches were but very slightly ulcerated on their internal surface. The patient who died in his fourth week had lived long enough for one patch to slough, and he had in his intestine not the neat little puncture of an ordinary perforation but a hole. In his peritoneal cavity was a considerable quantity of fluid stained with fæcal matter. It will easily be seen how hopeless such cases are for operative interference, and I fear that the statistics of any surgeon operating on perforations of the type I have seen here will be bad.

It is generally believed that the same germ in different epidemics of the disease which it causes may at one time attack one system—e.g., the gastro-intestinal—but in another epidemic the prominent symptoms may be of another type, falling upon some other system—e.g., the neural. But it seemed to me, while holding posts as locum-tenent in various districts in England during an influenza epidemic affecting a large part of the country, that the local conditions, such as soil, climate, &c., of the district, were much more important factors in determining the kind of complication to which the patient was liable. This has been borne out in my experience of enteric fever here. Although the patients came from widely different areas, and the attacks were of very varying severity, when they came to be treated under the same conditions the complications to which they were liable were the same. It would be interesting from this point of view to compare the complications to which the patients in No. 6 General Hospital were liable with those of one of the other military general hospitals.

This hospital is situated over 4500 feet above the sea-level, and the patients are all in tents. Lung complications have been in my experience exceedingly rare. I had three patients who had slight hypostatic congestion with bronchitis. They were all in the same tent, which was built on a slope, and the bricks under the feet of the bed were insufficient to make their beds level. They were transferred and the tent was subsequently moved round. In my other tents lung complications were conspicuous by their almost entire absence. The ventilation is very free and the nights are sometimes exceedingly cold. I had two tents transferred to me containing 14 patients who had been under treatment by another civil surgeon. Among them were two patients who had bronchitis. One of these had a considerable amount of hypostatic congestion, but the beds of both these patients were sloping down towards the head.

All the patients took five minims of carbolic acid in water three times a day. If I exclude patients who had taken large doses of opium after hæmorrhage in only one case has distension with flatus been troublesome, and in that case there was, in addition to typhoid ulceration of the small intestine, irregular ulceration of the large intestine, suggestive of a mixed infection of typhoid fever and dysentery. It was in the large intestine that the distension was most extreme. There was also slight general peritonitis. There had been no clinical signs of dysentery beyond a small quantity of mucous in the stools, which was not more than could easily be accounted for by occasional turpentine enemata and the frequent use of a rectal tube. Excluding this case distension has never once been a prominent feature. For this freedom from distension I am disposed to give some credit to the carbolic acid, aided undoubtedly by the fact that the patients were mostly men of considerable muscular development.

Surgeon-General W. D. Wilson, P.M.O., told me that he thought that carbolic acid had a tendency to increase the frequency of hæmorrhages. This is to some extent borne out by my experience. I have had 12 cases of hæmorrhage out of 120 cases and some of these patients at the time of writing are not yet discharged. Osler states that hæmorrhage occurs in from 3 to 5 per cent. On the whole, however, my feeling is that I like carbolic acid. Although the type of disease was undoubtedly severe the mortality was only 10 per cent., whereas in the enormous number of statistics collected by Murchison the mortality was 19 per cent., and Osler puts down the mortality at from 10 to 30 per cent.

As regards stimulants brandy seems much the most useful. Although undoubtedly this stimulant raises the blood-pressure and so, perhaps, increases slightly the risk of hæmorrhage, yet it certainly does so less than strychnine, which is the only other stimulant which seems to me to have an appreciable effect on the failing heart of an enteric fever patient. With a plentiful supply of brandy patients certainly seem less restless and they sleep more. Strychnine, on the other hand, seems to me sometimes to increase restlessness. After a hæmorrhage, too, I would not long deprive my patient of brandy. Hæmorrhage usually occurs in a patient whose disease has been of such a type that he had required a considerable quantity of stimulant before its occurrence, and if the pulse is allowed to grow very feeble after the hæmorrhage it seems well-nigh impossible to get a patient again to rally. Transfusion with normal saline solution will, I think, save a considerable number of lives among such patients. It has a wonderful effect in causing the patient to rally, and at the same time by dilution it increases the coagulability of the blood. I have tried giving a considerable quantity of hot water by the mouth, but without good result. It does not seem to be absorbed, and this to a large extent seems to me true of any stimulant given by the mouth under these circumstances. I have not tried water enemata, as I think that they would be too likely to disturb the intestine and, indeed, the patient generally.

Turning now from palliative to preventive treatment the question may be asked, What, so far as one can judge in a limited number of cases, are the results of inoculation with anti-typhoid serum? I had under my own care nine inoculated patients. My impression (and I think an impression is often more correct than statistics) is that they were milder than the average cases. Other medical officers have almost invariably expressed to me the same opinion. Perhaps, however, the wish was father to the thought. The figures which I have been able to collect are curious. Owing to the kindness of Civil Surgeon F. Pearshouse and Civil Surgeon R. D. Maxwell I was able to get statistics of 327 cases among non-commissioned officers

and men; of these, 35 only—i.e., 10·7 per cent.—had been inoculated. None of them were inoculated twice, but all, so far as could be ascertained, had reacted fairly well to their one inoculation. This result seemed good, but of 200 patients in hospital suffering from other diseases I found that only 6·5 per cent. had been inoculated. This result would make it appear that the risk of infection from enteric fever is considerably increased by inoculation. This conclusion appears to me to be absurd. The explanation probably is that as all the patients suffering from diseases other than enteric fever were questioned at the same time they were drawn from one or two regiments, and regiments varied considerably in the percentage of men inoculated. I must have happened upon regiments of which the members were but little inoculated, and thus the percentage of men inoculated is too low. The fact that I contracted enteric fever myself shortly after making this inquiry prevented my repeating it.

Some medical men have stated that they do not think inoculation is of much value as a preventive but that it modifies the course of the disease when contracted. With this question in view I investigated three factors—(1) the mortality; (2) the average temperature both morning and evening for the first ten days after admission; and (3) the average number of days before the temperature finally became normal. I found that the death-rate among the inoculated patients was 2·3 per cent. lower than that of the not inoculated. The average temperature for the first 10 days was 0·9 per cent. lower, but it was 5·4 days longer before finally becoming normal.

The number of patients from whose charts these statistics were made were small. I took the average temperature and the date when finally they became normal in 50 consecutive not inoculated cases, but of my 39 inoculated patients I could only find the charts of 22.

Small as these figures are, however, they indicate that inoculation as at present practised cannot be regarded as a striking success. All the inoculations were recent, not one being more than six months old. No sane person will deny that an equal number of vaccination statistics would *decidedly* show its value.

It must be borne in mind, too, that a slight improvement in the figures of the inoculated patients will be of no value. The quieter and more intelligent men would be the first to take advantage of the measure of protection which it was hoped it would confer. They would be the men most conscious of their danger. They would be more careful than their comrades in other ways. As a matter of fact a large number of them were non-commissioned officers.

I purposely excluded all officers in my statistics. In the first place they are more careful and have better opportunities of avoiding sources of infection than their men. In the second place, I should estimate that about half of the officers who came out to this country had been inoculated, and thus would have hopelessly altered statistics according to whether they were added in greater or less proportion. Thus of 16 officers whose charts I examined seven were inoculated. If they had been added to my statistics among the men they would have materially altered the percentage of inoculated cases.

I am not at all sure that the immunity conferred by an actual attack of the disease is not exaggerated. Enteric fever at home is a rare disease so it is very rare for one individual to have it twice. But in taking past histories from soldiers so many of whom have lived in India it is not at all rare to hear that they have had a previous attack.

BRIDGEND COTTAGE HOSPITAL.—The committee of this hospital has decided to close the hospital for a time through lack of funds.

ROYAL CORNWALL INFIRMARY, TRURO.—The annual meeting of the friends and supporters of this institution was held on August 13th under the presidency of Colonel Tremayne. The report showed that during the past year 393 in-patients had been admitted; 790 out-patients had also been attended, against 650 in the previous year. The financial statement showed that the receipts amounted to £1902 and there was a favourable balance of £86 remaining. The Cornwall Convalescent Home for Men at Perranporth, in connexion with the infirmary, had received 114 patients, their average stay being 24 days and the cost per patient £2 5*s.* 8*d.* The high sheriff of Cornwall (Mr. R. Harvey) was elected president for the ensuing 12 months.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procemium.

ST. MARY'S CHILDREN'S HOSPITAL, PLAISTOW, E.

TWO CASES OF TUBERCULOSIS OF THE PERITONEUM.

(Under the care of Mr. A. E. KENNEDY and the late Mr. E. A. T. STEELE.)

THE value of simple laparotomy in tuberculous peritonitis is now generally acknowledged and the explanation usually given is that opening of the abdominal cavity disturbs the previously existing conditions of exudation and absorption, so that the tubercle bacillus is no longer capable of living. Though this explanation is hardly satisfactory, yet the evidence we possess is sufficient to justify the performance of the operation. Drainage seems to be unnecessary and undoubtedly it adds largely to the risk of the laparotomy. Flushing with normal saline solution has appeared to be useful, but as this case shows it is not essential. The second case, so far as it goes, appears to suggest that merely making a small opening into the abdominal cavity, as in the performance of a radical cure of a hernia, is not sufficient to have any beneficial effect on the tuberculous peritonitis. For the notes of the cases we are indebted to Mr. T. B. Sellors, senior resident medical officer.

CASE 1.—A delicate-looking boy, aged four and a half years, with prominent forehead, anæmic complexion, and vacant expression, was admitted into St. Mary's Children's Hospital, Plaistow, on April 22nd, 1900, under the care of Mr. Kennedy, with rapid wasting and a general swelling of the abdomen. Though delicate from birth he had had no serious illness. His mental faculties had been always slightly impaired. A strong family history of tuberculosis on the maternal side was elicited. A little over a fortnight before admission the mother thought that the boy was losing flesh and during that time he became rapidly thinner, suffering also from severe diarrhœa, pains in the stomach, aching of the legs, and sweating. He became even more languid and silent. The mother stated that she noticed the swelling of the abdomen four hours only before admission and that it increased very rapidly, but the reliability of her statement is doubtful. On examination the abdomen was seen to be distended and swollen, the umbilicus being prominent. On careful palpation the muscular wall was tense, but neither rigid nor tender, and a few ill-defined lumpy swellings were made out in the umbilical region; the circumferential measurement at the level of the umbilicus was 21¾ inches; slight dulness in the flanks and an ascitic thrill were detected. The temperature was 101·8° F. and the weight 2 st. 3 lb. There were no signs of rickets, pulmonary or cardiac disease. On May 4th, as the symptoms had increased in severity and the temperature had risen to 101° each evening, laparotomy was performed. After the parietal peritoneum had been divided the intestines were found to be matted together by strong adhesions and a little fluid escaped. It had been intended to wash out the abdominal cavity with normal saline solution, but this would have proved a matter of difficulty owing to the number of adhesions present, and the condition of the child under the anæsthetic became so bad that the wound was closed as rapidly as possible without further interference. The temperature, with the exception of a short reactionary rise after the operation, remained normal until the 13th, when a sutural abscess was discovered; a month later the peritoneal suture came away, after which the wound healed rapidly without complications. By the end of May the circumference of the abdomen was reduced to 20 inches and most of the weight lost since admission had been regained. The patient was discharged on July 8th to a

convalescent home, the abdominal circumference being at that time 18½ inches (a reduction of three and a half inches since operation), and the weight 2 st. 4 lb., the temperature having been normal for six weeks. He has stayed at the convalescent home for four weeks, has grown rapidly in health and weight, and a marked improvement has taken place in his mental condition. He walks without difficulty or pain and is not unduly fatigued on exertion. No medicinal treatment was employed.

CASE 2.—A healthy-looking male child, aged 14 months, was admitted into the hospital on May 14th, under the care of the late Mr. Steele, for radical treatment of double congenital hernia. A double truss had given good support to the right side but failed to properly retain the hernia on the left side. No other illness of importance had occurred since birth and no family history of tuberculosis was ascertainable. On the following day radical cure was performed on the left side. The usual incision having been made the dissection was carried down to the sac, which was only freed with great difficulty owing to close adhesions probably caused by the ill-fitting truss. The sac, which was large and contained a considerable amount of serous fluid, was opened at its lower extremity, and the child coughing at that moment a coil of intestine protruded. A granular appearance of the surface of the bowel being noticed, the loop was drawn out still farther and on closer investigation was seen to be studded with tubercles chiefly on its free border; tuberculous patches were also observed on the mesentery. The sac was slit up and was affected in a similar manner from the neck downwards for about three-quarters of an inch. It was removed after ligature of the neck, the size of the inguinal canal was reduced by sutures and the operation was concluded in the usual manner. The sac and a few of the tubercles which had been snipped away with fine scissors were given to Dr. Eyre, who kindly made an examination, identifying the bacillus tuberculosis by primary microscopical examination and reproducing the disease in a rabbit by inoculation. The circumference of the abdomen at the umbilicus on the day after the operation was 17 inches. Nine days later the stitches were removed, the union of the skin edges being perfect. On June 5th, three weeks after the operation, the abdominal measurement had increased to 18½ inches with some distension but no signs of fluid. On June 12th, nearly three weeks after removal of the stitches, the scar, which up to this day had appeared perfectly sound, broke down in the same manner that, after removal of tuberculous glands, an apparently healed wound in the neck breaks down some weeks later if at the time of the operation the tissues were infected by the escape of caseous matter. The wound healed in a week but the scar was now broader and of a less healthy appearance than formerly. The temperature for some time had risen each morning to 102° or 103° F. The patient remained in the same condition until the beginning of July when diarrhœa set in, the appetite failed, and weight was lost rapidly. On July 4th the scar again broke down. On the 7th two slight convulsions occurred, followed by the symptoms of tuberculous meningitis, from which the child died on the 9th.

Necropsy.—At the post-mortem examination a state of general tuberculosis was found. Both the visceral and parietal layers of the peritoneum were studded throughout with tubercles, which in many places were aggregated together so as to form masses as large as sixpences; there was a moderate excess of serous fluid. The lungs showed evidence of extensive tuberculous invasion. The pia-arachnoid covering the base of the brain and in the Sylvian fissures was opalescent and opaque, containing deposits of small greyish-white tuberculous nodules. There was no hydrocephalus and the dura mater was apparently unaffected.

Remarks by Mr. SELLORS.—Case 2 shows how a well-marked tuberculosis of the peritoneum may exist in an infant and its presence be unsuspected, for the patient from all accounts had enjoyed apparently perfect health up to the time of admission; and it also shows how rapid may be the development of a general tuberculosis starting from the peritoneum, for I am convinced that the disease must have commenced in that membrane, as no physical signs of pulmonary disease were observed till within a week and no nervous phenomena occurred till within two days of death. If the exposure of the abdominal cavity which occurs in the radical treatment of inguinal hernia may be considered as equivalent in value to a median laparotomy, the rapid course of the disease after the operation would be a strong argument against early surgical interference. The benefit resulting from the operative treatment of the disease in an advanced stage is well shown by Case 1.

HOSPITAL FOR WOMEN AND CHILDREN, LEEDS.

A CASE OF OSTEOMALACIA SHOWING THE EFFECT OF OOPHORECTOMY IN CHECKING THE ELIMINATION OF PHOSPHATES BY THE URINE.

(Under the care of Dr. E. O. CROFT.)

OUR knowledge of the etiology of osteomalacia is so very slight that it is practically impossible to give any satisfactory explanation of the action of removal of the ovaries in improving the condition of these patients. Curato and Tarulli[1] suggest that the internal secretion of the ovaries has the power of oxidising compounds of phosphorus, such as those which exist in bones, so that after the removal of the ovaries there is an increased deposit of calcium and magnesium phosphate in the bones, which thus become stronger. Rossner[2] claims to have found hypertrophy of the vessel walls with extensive hyaline degeneration in the ovaries which had been removed in three cases of osteomalacia. Phosphorus and also bone-marrow[3] have been said to produce great improvement in several cases of the disease, and it is advisable that their action should be further studied.

The patient was a married woman, aged 35 years, who had had one pregnancy, the child having been born about two and a half years ago. She had always lived in Leeds and there was no history of rickets, syphilis, or other general disease. Menstruation commenced at the age of 17 years and was irregular, painful, and scanty, recurring three or four times a year until after the confinement. Since then the periods had been regular every four weeks, lasting about five days and being free from pain. The present illness dated from about the sixth month of her only pregnancy. She then experienced great difficulty in walking and severe pain in the back and thighs, especially on the right side. The difficulty and pain increased so that although she could stand alone she could not walk without assistance. The pregnancy advanced to full term. She was attended by Dr. Fergusson of Leeds who delivered her by means of forceps of a healthy living child. The labour, though tedious and troublesome, presented no very special difficulty, so that it is probable that no great amount of deformity could have existed at the time. The secretion of milk ceased spontaneously at the end of about a week after the labour. The child lived some few months and died from small-pox. After labour the pain in the back increased, although walking became somewhat easier and the pain in the thigh diminished. She became able to walk from 200 to 300 yards without help, but was much exhausted after doing so.

The patient came under the care of Dr. Croft in the Hospital for Women and Children, Leeds, in April, 1899. At that time she appeared to be fairly well nourished and healthy, but was very lame and had much pain. There was tenderness over the spinal column and on the ribs, sacrum, and pelvis, but not over the long bones of the limbs. The abdomen was prominent and pendulous, but otherwise revealed nothing abnormal. The symphysis pubis was very prominent, the pubic rami receding from it to such an extent that the beak-like projection of the pubes could be grasped between the fingers. By vaginal examination the pubic arch was much narrowed and the ischial tuberosities were brought much nearer together than usual. Owing to this last fact it was difficult to examine the upper parts of the pelvis and the exact position of the sacral promontory could not be defined. The external measurements were: widest part of the iliac crests, 11¼ inches; between the anterior superior spines, 9¼ inches; and external conjugate diameter, 7⅞ inches. The patient was treated with rest, tonics, and various drugs to relieve pain and returned home in about a month somewhat relieved.

Dr. Croft saw the patient again in March, 1900. The symptoms had become much worse and the day on which he saw her was the last occasion on which she was able to walk

[1] Centralblatt für Gynäkologie, 1895, No. 21.
[2] Archiv für Gynäkologie, vol. xlviii., 1895, part 3.
[3] Edinburgh Medical Journal, May, 1896.

or stand alone. She was re-admitted to the hospital on April 23rd. Her condition then was such that not only was getting out of bed impossible, but movements of turning and reaching in bed caused severe pain in various parts of the back, pelvis, thighs, and lower ribs. Sleep was much disturbed by the pain and it was necessary to relieve it frequently by suppositories of morphia and hyoscyamus. The deformity of the pelvis had much increased. Externally the iliac crests were felt to present a much more acute curve so that the anterior superior spines approximated. The pubes was very prominent and its rami receded sharply. The external measurements were: between the iliac crests, 10⅞ inches; between the anterior superior spines, 8¾ inches; external conjugate diameter, 8¾ inches; and inter-trochanteric width, 10¼ inches. The width of the pelvis had markedly diminished, the distance between the spines specially so, and the inter-trochanteric width was much less than normal owing to the inward and upward displacement of the acetabula. The sacrum presented an excessive curve. On vaginal examination the finger could only be passed behind the ischial tuberosities. The pubic arch was so narrow that, together with the tuberosities, it formed a slit-like space scarcely more than a quarter of an inch apart. It was impossible to reach the sacral promontory or upper part of the pelvis. Messrs. Reynolds and Branson kindly undertook to attempt to obtain a skiagram of the pelvis for Dr. Croft. The result was extremely indistinct. Whether this was due to the usual difficulties of obtaining a good result in the case of the pelvis or whether the failure was actually associated with the diminution of earthy matter in the bones it would be interesting to know.

The condition and amount of the urine were carefully noted. On May 23rd, a month after admission, and the patient being presumed to be in an average condition with regard to diet and so on, the urine was reported upon by the Clinical Research Association with the following result as far as regards the amount of phosphates present: phosphoric acid (P_2O_5), 0·170 per cent., or 0·74375 grain per ounce; there was no albumose present; quantity of urine in 24 hours, 40 ounces; total phosphoric acid per diem, 29·74375 grains. The good effect said to be produced by oöphorectomy in osteomalacia is stated to be brought about by its causing in some manner a reduction in the elimination of phosphates by the kidneys. Curatulo and Tarulli (Rome, 1896) experimented on this subject by removing the ovaries of bitches while under average conditions of diet and excretion, the urine being carefully examined at intervals. After oöphorectomy the amount of phosphates (as P_2O_5) in the urine was greatly and permanently diminished.[*] The result of observation in the present case, although only imperfectly carried out, is in accordance, so far, with these experiments.

On May 28th Dr. Croft performed double oöphorectomy. The operation was simple. At the time the condition of the pelvis could be thoroughly examined. In addition to the rostration of the pubes and the approximation of the ileopectineal eminences the depression of the sacral promontory and its inclination towards the left side were observed. Recovery was aseptic and normal, the wound being dressed and sutures removed on the tenth day, healing being perfect. During the four weeks after the operation the patient gradually improved. The pain became less so that no opiates were required and she became able to move about more easily and with much less pain. Standing was difficult and painful. On June 27th, one month after the operation, and the patient having resumed conditions of diet as before, an average sample of the urine was examined with the following result: phosphoric acid (P_2O_5), 0·08 per cent., or 0·35 grain per ounce; quantity of urine passed in the 24 hours, 55 ounces; total phosphoric acid per diem, 19·25 grains. Comparing this with the amount passed before the operation a diminution is shown in round numbers of from 30 to 20 grains of phosphoric acid per diem.

Remarks by Dr. CROFT.—Osteomalacia being a very rare disease in this country the above case is, I think, worthy of record, especially as a somewhat rough observation has been made on the effect of oöphorectomy in checking the progress of the disease by causing a diminution in the amount of phosphates eliminated by the kidneys. This observation is, of course, very imperfect and would be of greater value if more repeated analyses could have been made, but it is of interest as far as it goes, and I shall endeavour to trace the further progress of the case with a view to ascertain the ultimate effect of the treatment on the progress of the disease.

[*] See Kelly: Operative Gynæcology, vol. ii., p. 167.

Reviews and Notices of Books.

A Handbook of the Gnats or Mosquitoes, giving the Anatomy and Life History of the Culicidæ. By Major G. M. GILES, I.M.S., M.B. Lond., &c. London: John Bale, Sons, and Danielson, Limited. 1900. Pp. 8 + 374. Price 15*s*.

To the general reader, who is accustomed to speak of *the* mosquito, this work will be a revelation. Any smallish fly that bites is commonly labeled "mosquito," but if we restrict ourselves to the gnat tribe only, to which a large quantity of these belong, we are confronted with a swollen list of no less than 242 different species. Even in this country a man may, by judicious selection of the places which he visits, get himself bitten by some 24 different kinds of gnats. Naturally the vast majority of these forms have been discovered and described during the present century; in the year 1817, the author informs us, there were only 15 species known. It is probable, however, that there were quite as many bites then as now.

The reason for the aggressive attitude of these culicidæ, as the family name of the mosquito tribe runs, is not without mystery. It would seem that normally they feed upon the juices of plants. Mr. W. H. Hudson in one of his instructive and delightfully written contributions to natural history has pointed out how small a percentage of mosquitoes can ever get the chance of a good bite at a human being. This particular variety of food can therefore be hardly necessary to them or nature would either have abolished the mosquito or made better commissariat arrangements in their behalf. In such countries as Lapland, to which the author refers and which his present reviewer has visited, there is no doubt whatever about the attitude of the local gnat or gnats. Their mind is thoroughly made up from the first in favour of an animal diet. Instead of hovering in a tentative fashion round the victim they fly straight and with unerring precision to the most vulnerable spots upon the body of the pedestrian whom they desire to bleed. A few hundreds of their sharp lances is an experience which it is not easy to forget. In this more favoured country the common gnat (culex pipiens) and allied species do not, as a rule, gratify their appetites by a fill of human blood. When they are stirred up to do so it would seem, according to the author, that the weather is responsible. "It is noticeable," he observes, "that whenever there occurs a spell of unusually hot weather we find in the press notices of the occurrence of mosquitoes, which, however, always turn out to be common indigenous species when submitted to a competent expert." In the glare of sunshine, we may imagine, they see men as trees walking and desert their vegetarian for a carnivorous diet. Next to the intermittence in the ferocity of British gnats the most remarkable fact about their biting propensities is that the females alone, save in one ascertained case, are the culprits. It is, perhaps, natural to expect this, since that sex, being the egg-producing sex, has need of more abundant nutrition than have the males. These tiny anthropophagi, moreover, are not content with merely taking their fill of our vital fluid: they leave behind them an unpleasant memento of their visit in the form of an irritant liquid which causes the tender tissues of many of us to swell up. This habit is not due to a sheer wish to produce as much torture as possible: it appears that the liquid which the insects secrete is useful as a means of keeping the substances upon which they feed in a proper condition for

absorption and passage through the narrow canals along which they have to pass.

One of the principal authorities upon the structure and life of these tiresome culicidæ, with the curiously compound name of Lynch Arribalzaga, has divided the bloodthirsty gnats into four groups according to the localities which they affect; there are domesticæ, campestræ, palustræ, and silvicolæ. Major Giles naturally adds to this "that there is nothing absolute in such an attempt at a classification of habitats." Anopheles, for example, which is the only genus that conveys the deadly malarial parasite, is as much at home in a marsh as in a house. It oscillates, indeed, between the two habitats, conveying in the course of these oscillations the germ of malaria from its home in marsh-frequenting beasts to the human body. The author gives incidentally a useful method of distinguishing at a glance this infection-carrying genus from the more harmless culex. The former sits upon a wall with its head pointing towards the wall and the rest of the body jutting out, while culex sits with the entire body parallel to the surface upon which it is resting. This suggestion, however, will probably not secure too much consideration for the reclining culex—it has too many, though lesser, sins to expiate.

Major Giles devotes a reasonable space to the detailing of the structure of gnats, as perfect insects, larvæ, and pupæ. The only portion of this otherwise admirable section to which we take exception is the series of illustrations: these figures are massed in the form of plates of excessively coarse execution. Indeed, the general get-up of the book is far from attractive; and we are of opinion that the publishers might have seconded the author more liberally. His part is well done; theirs is inferior in more than one respect. Such figures as No. 7 on Plate 1, which should illustrate a transverse section through the body of an adult gnat, is simply abominable in its vagueness and poverty of execution. Nor can any excuse be made on the score of cheapness: the book is priced at 15*s.*, which would be prohibitive in a less necessary work.

The author, being a medical man as well as a zoologist, devotes some little space to the prophylactic treatment of the injuries caused by these devouring flies. Into the question of malaria itself, which is at the present time being so extensively investigated and with such important results, the author does not enter at all. His book is merely intended as a handbook to those who are working at this part of the subject, apart, of course, from its importance as a monograph of the culicidæ. But various considerations which result from the descriptions of the life history of the gnat tribe lead to conclusions as to the best way of ridding a neighbourhood of these deleterious insect pests. As everybody knows the gnat tribe lay their eggs in water in the shape of little "rafts" made up of a number of separate eggs fastened together. War may be waged against the mosquito by preventing this laying of eggs at all, and in at least two ways. The eggs are the product of hibernated examples which often hang about infrequently dusted curtains. To shake these and to slay the enclosed females is a preventative measure which should be easy enough in a well-served house. The author suggests as a practical hint that the curtains should be taken down with care and then tightly rolled up so as to crush the enclosed flies. As a temporary method of getting rid of a population of already hatched and vigorous mosquitoes the author recommends the opening of doors and windows at dusk when the flies generally seek their vegetable nourishment outside, re-entering at sunrise when the same aperture of ingress should be closed. It has been found that gnat larvæ do not flourish in streams and ponds where there are fish. They prefer puddles which are of a sufficiently durable nature to give time for the due transformation of the little "dolphins" into flies. In such puddles there are usually no fish; but if they are something between temporary puddles and permanent pools small fishlets can be introduced in order to decimate the larvæ. It is necessary to bear in mind, so that much time, expense, and energy need not be wasted, that the larvæ need green algæ or other plants for their food; a barren puddle is as destitute of mosquito larvæ as the most fish-teeming tank. The mosquito may be confronted with a further series of destructive measures. One of the best ways of grappling with this aquatic creature is to spread a thin layer of paraffin upon the water which it is known to inhabit. The presence of this oil does not seem to be directly poisonous, but to interfere in a thorough and drastic fashion with its breathing arrangements. The larvæ, as a rule, rest at the surface of the water with two little respiratory syphons protruding. To choke up these tubes is absolutely to stop respiration. In doing this, however, in India at least, the suspicious mind of the native must be set at rest. To spread kerosene or paraffin about freely would in the time of a scare cause the people, thinks the author, to "gravely suspect their governors of setting fire alike to the soil and water of their habitations." It is as well, therefore, to be circumspect in purchasing and in sprinkling the insecticide. Or rather the thing should be done openly and in the bazaars, so as to allay any rising mistrust. We have not space to enter more fully into this very important part of Major Giles's book. It must be sufficient to say that the practical hints for the permanent removal of mosquitoes from a neighbourhood are very full, as will perhaps be gathered by the few extracts that have been given. The latter, and the larger, part of the volume is taken up with a full description of the known species of mosquito which fall into, at any rate, eight genera. This, the concluding, section of the work is of course for reference; for which purpose it will be found to be very full. There should be no difficulty in recognising a species and the genus to which it belongs, since the elaborate descriptions are rendered more useful by a series of tabular statements of the main characters of the species. The only reason which leads us to hesitate in recommending this book as a text-book of the family of the culicidæ is, as has been already said, the utter disproportion between the price and the quality of the insufficiently numerous illustrations.

The Ophthalmic Patient: a Manual of Therapeutics and Nursing in Eye Disease. By PERCY FRIDENBERG, M.D., Ophthalmic Surgeon to the Randall's Island and Infants' Hospitals; Assistant Surgeon to the New York Eye and Ear Infirmary. New York: The Macmillan Company. 1900. Pp. 312. Price 6*s.* 6*d.* net.

ALTHOUGH in every complete ophthalmic treatise dealing with the diseases of the eye in general some details in regard to treatment will be found these details for the most part only constitute a kind of appendix to the chapters on cataract, purulent ophthalmia, and glaucoma, and many points of nursing are omitted. In the very sensibly written work before us the whole subject is considered in a manner that leaves little to be desired and forms a mass of information that should be carefully studied by those who are responsible for the building of a new hospital or who have to superintend the treatment of ophthalmic in- and out-patients.

No attempt is here made to supply a description of the various forms of ophthalmic disease. The author takes it for granted that the diagnosis is made and proceeds to consider the construction, ventilation, and illumination of eye wards with the furniture required in them. He points out how important are accurate histories and records of the symptoms present on admission, and then describes under the head of Ophthalmic Therapeutics the principal remedies in common use, both local and general. The various methods

of disinfection and of sterilising instruments and dressings are dwelt upon. A chapter is devoted to the arrangements for ophthalmic operations and for the due nursing after each. The dressing and bandages required after operations are given and the last chapter is devoted to eye-shades, dark glasses, and artificial eyes. The immense advance that has been made in regard to antisepsis is very striking. The use of glass or metallic trays, the sterilisation of knives, forceps, and instruments generally, and the employment of pure wool as a light compress, are important factors in maintaining the high standard of success that is now always anticipated. The work is illustrated by many drawings.

LIBRARY TABLE.

Betegségek és Egészségügyi Tekintetben Hiányos Lakások. Elöadta a Londoni Harvey-Társulat Körében CORFIELD, W. H., az Oxfordi Egyetem Orvosdoktora. Forditotta Frank Ödön dr. Kir. Közegészségi Felügyelö, Egyetemi M. Tanár. Budapest. 1900.—Two lectures delivered by Professor Corfield on Disease and Defective House Sanitation before the Harveian Society of London, were published in book form in 1896 and were reviewed in THE LANCET of Sept. 12th in that year (p. 752). They have now been translated into Hungarian by Dr. Frank of Budapest for the Royal Society of Public Health of Hungary, forming a 24-page pamphlet of tasteful appearance with numerous illustrations. Dr. Frank says in his preface: "The following two lectures by Professor Corfield merit the attention of Hungarian readers because they explain the views of the English hygienist and because the sanitary arrangements of dwellings in our country are much more unsatisfactory than those in England. Professor Corfield may accept this translation as a token of esteem and gratitude for the hospitality and kind advice which he has given to those of the Hungarian hygienists who have called upon him in London."

A Pocket Medical Dictionary. By GEORGE M. GOULD, A.M., M.D. Fourth edition. Philadelphia: P. Blakiston's Son and Co. 1900. Pp. 838. Price $1.25.—This is a handy little volume which sets forth the definition and pronunciation of some 30,000 words. It also gives a variety of other useful information, including a brief account of micro-organisms, certain anatomical facts relating to the muscles and the nerves, and a table of weights and measures, doses, and tests. It also gives a table of clinical eponymic terms. This is a new feature, so far as we are aware, among medical dictionaries, and it is one of considerable usefulness, for it not infrequently happens in reading of a symptom or disease which is described by the name of its discoverer that there is no clue as to its nature. This table seems on the whole to be very complete, and contains such up-to-date information as "Babinski's sign." The appearance of a fourth edition within a limited period of time speaks for the success of the work and we can cordially recommend it to medical men, particularly to those who are studious enough to keep abreast of medical literature. We cannot, however, say that we altogether approve of the practice, now becoming so common in America, of adopting phonetic spelling, and we notice with regret such terms as "exophthalmic goiter" and "center."

JOURNALS AND REVIEWS.

Revue d'Hygiène et de Police Sanitaire. Vol. xxii., No. 7. July, 1900. Paris: Masson and Co.—The hygiene of churches is not a subject which has as yet been at all exhaustively studied, and having regard to its obvious importance the article in the July number of this review from the pen of Dr. Paul Remlinger, chief of the Military Laboratory of Bacteriology, is of interest. Churches are there fully discussed from the point of view of their salubrity and of the opportunities which they afford of contracting disease. The author also points out how the conditions which at present obtain may be remedied. We commend the article to all those concerned with the construction and control of places of public worship. This number also contains a capital article on the Municipal Sanitary Service of Amsterdam by Dr. Ringeling. It deals with the mortality figures of Amsterdam beween 1880 and 1889, and it may be mentioned that the general death-rate of the city compares at the present time very favourably with those of other important towns in Europe. The whole sanitary administration of Amsterdam is touched upon, and for those who are not conversant with the Dutch language an excellent opportunity is afforded of becoming familiar with the modern hygiene of a Dutch city. The Pasteur Hospital is the subject of a paper by M. Martin which is well illustrated throughout.

The *Veterinarian* for August commences with a well-written and illustrated article by Dr. John Lindsay on a fœtal monstrosity (diprosopus diophthalmus) from a cow. The head was that of a full-time calf, the monstrosity being an instance of a rare and interesting form of anterior dichotomy. Dr. Lindsay dissected the specimen very carefully and has given clear details of all the abnormalities present. A report upon work done in New Zealand by the Government Veterinary Department under Mr. J. A. Gilruth, M.R.C.V.S., regarding the subject of swine fever is summarised by Mr. J. A. W. Dollar and extracts are given from American veterinary journals. In the "Month's Progress" and "Science Notes" short paragraphs are culled from English and foreign scientific journals and inserted as being likely to interest veterinary surgeons. The remainder of the journal is occupied by an account of the proceedings of council.

Edinburgh Medical Journal.—In the August number Dr. Dormer Harris gives some useful dietetic hints in a paper on the Feeding of Phthisical Patients. Dr. G. R. Murray's paper on the Treatment of Some Forms of Enlargement of the Thyroid Gland in Young Adults is noticed in another column. Dr. H. Macnaughton Jones, in a paper on the Influence of Conservatism on Surgical Gynæcology, recommends vaginal panhysterectomy as soon as malignant uterine disease has been diagnosed with certainty and deprecates hesitation in the removal of diseased adnexa and adnexal tumours. Dr. E. Arthur Gibson of Glasgow describes a case of uretero-cystostomy for uretero-vaginal fistula. He says that the operation has been performed many times in America and on the continent, but he has failed to find a report of any case done in this country. He operated on Dec. 30th, 1899, and the patient has not since that time had any urinary trouble whatever.

Scottish Medical and Surgical Journal.—In the August number there is a paper on General Blood-pressure in Sleeplessness and Sleep by Dr. L. C. Bruce, of the Perth District Asylum. He has found that in the majority of cases of sleeplessness in mental disease the blood-pressure is high—namely from 130 to 150 millimetres of mercury as tested with Barnard and Hill's sphygmometer and that for such patients the most certain hypnotic is paraldehyde in doses of at least two drachms. Dr. F. D. Boyd, of the Edinburgh Hospital at Norval's Pont, South Africa, discusses the question of enteric fever in the British forces. Altogether there are seven original articles.

La Grèce Médicale.—The principal article in the August number is the first part of a paper entitled "Continued Malarial Fevers (Des Fièvres Continues Palustres) and their Predominant Forms in Greece." It is by Dr. J. Cardamatis, vice-president of the Medical Society of Athens, who maintains that there is in Greece besides typhoid fever and

malarial fever a special class of fevers which are not attributable either to the plasmodium malariæ or to Eberth's bacillus, but belong to the auto-infections of the organism. He therefore divides the fevers of Greece into the three following principal classes arranged in order of frequency: (1) Fièvres paludéennes; (2) Fièvres par auto-infection; and (3) Fièvres typhoïdes. *La Grèce Médicale* and Ἰατρικὴ Πρόοδος—i.e., *Medical Progress*, a Greek journal of 36 pages—are published conjointly in Syra, the editor being Dr. Joannes Foustanos.

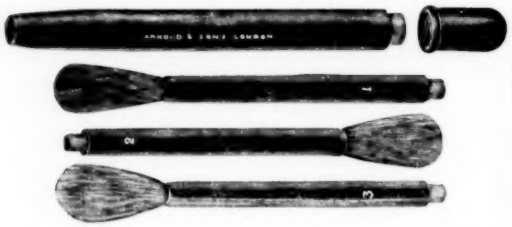
Friend of China.—In the July number the Rev. J. C. Kerr, M.D., of Canton, has a short paper on the effects of the opium habit, as observed by him in his experience of 40 years "in a large city and in a large hospital."

Mercy and Truth.—In the August number Dr. Mary Synge of Fuh-ning, South China, writes on Women Patients, Rich and Poor, and Mr. Walter Squibbs describes an attack on a medical mission at Kiang-peh in Western China in 1898.

New Inventions.

A POCKET CAMEL HAIR SURGICAL BRUSH.

MANY practitioners, in common with myself, must have often found the unsuitableness of the ordinary camel hair brush (for painting throats, &c.) for being carried in the pocket when on one's rounds. I have designed one on the principle of the pocket penholder, the use of which will be



at once apparent. There are two extra brush-ends adaptable to the vulcanite holder and each one is numerically marked, so that when used for infectious cases, &c., they can be easily differentiated and "put in quarantine" till thoroughly disinfected. Messrs. Arnold and Sons, surgical instrument makers, of West Smithfield, have carried out my directions *secundum artem* and a most useful and handy little instrument is the result.

W. L'HEUREUX BLENKARNE, M.R.C.S. ENG., L.S.A.,
Formerly Surgeon to the Leicester and Leicestershire
Worthing. Provident Dispensary, &c.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

THE council of the Metropolitan Hospital Sunday Fund met on July 30th at the Mansion House to receive the report of the committee of distribution and to order payment of awards. Sir SYDNEY H. WATERLOW, the Vice-President, occupied the chair.

The following are the awards recommended by the Committee of Distribution for the year 1900:—

32 GENERAL HOSPITALS.

Charing Cross Hospital, £1169 3*s.* 4*d.*; French Hospital, £325 16*s.* 8*d.*; German Hospital, £994 3*s.* 4*d.*; Great Northern Central Hospital, £822 18*s.* 4*d.*; Guy's Hospital, £1533 6*s.* 8*d.*; Hampstead Hospital, £210 16*s.* 8*d.*; Italian Hospital, £19 3*s.* 4*d.*; King's College Hospital, £1633 6*s.* 8*d.*; London Hospital, £4800; London Homœopathic Hospital, £622 18*s.* 4*d.*; Phillips Memorial Homœopathic Hospital, £33 10*s.* 10*d.*; London Temperance Hospital, £786 16*s.* 8*d.*; Metropolitan Hospital, £690; Mildmay Hospital, £238 15*s.*; Miller Hospital and Royal Kent Dispensary, £268 6*s.* 8*d.*; North-West London Hospital, £383 6*s.* 8*d.*; Poplar Hospital, £622 18*s.* 4*d.*; Royal Free Hospital, £1006 5*s.*; St. George's Hospital, £1935 16*s.* 8*d.*; SS. John and Elizabeth Hospital, £47 18*s.* 4*d.*; St. Mary's Hospital, £1974 3*s.* 4*d.*; St. Thomas's Hospital, £431 5*s.*; Seamen's Hospital Society, £1111 13*s.* 4*d.*; the Middlesex Hospital, £2012 10*s.*; Tottenham Hospital, £191 13*s.* 4*d.*; University College Hospital, £1245 16*s.* 8*d.*; Walthamstow, £86 5*s.*; West Ham Hospital, £392 18*s.* 4*d.*; West London Hospital, £622 18*s.* 4*d.*; and Westminster Hospital, £1341 13*s.* 4*d.*

SPECIAL HOSPITALS: 5 CHEST HOSPITALS.

City of London Hospital for Diseases of the Chest, Victoria-park, £670 16*s.* 8*d.*; Hospital for Consumption, Brompton, £1820 16*s.* 8*d.*; North London Consumption Hospital, Hampstead, £364 3*s.* 4*d.*; Royal Hospital for Diseases of the Chest, City-road, £383 6*s.* 8*d.*; and Royal National Hospital for Consumption, Ventnor, £287 10*s.*

17 CHILDREN'S HOSPITALS.

Alexandra Hospital for Hip Disease, W.C., £143 15*s.*; Banstead Surgical Home, £38 6*s.* 8*d.*; Barnet Home Hospital, £38 6*s.* 8*d.*; Belgrave Hospital for Children, S.W., £124 11*s.* 8*d.*; Cheyne Hospital for Incurable Children, S.W., £96 16*s.* 8*d.*; East London Hospital for Children, Shadwell, E., £651 13*s.* 4*d.*; Evelina Hospital for Sick Children, Southwark, S.E., £383 6*s.* 8*d.*; Home for Incurable Children, Maida-vale, W., £76 13*s.* 4*d.*; Home for Sick Children, Sydenham, S.E., £124 11*s.* 8*d.*; Hospital for Sick Children, Great Ormond-street, W.C., £910 8*s.* 4*d.*; North-Eastern Hospital for Children, Hackney-road, N.E., £335 8*s.* 4*d.*; Paddington-green Hospital for Children, W., £268 6*s.* 8*d.*; St. Mary's, Plaistow, E., £210 16*s.* 8*d.*; St. Monica's, Brondesbury, N.W., £100 12*s.* 6*d.*; Victoria Hospital for Children, King's-road, Chelsea, S.W., £575; Victoria Home, Margate, £23 19*s.* 2*d.*; and "The Vine," Sevenoaks, £38 6*s.* 8*d.*

6 LYING-IN HOSPITALS.

British Lying-in Hospital, Endell-street, W.C., £33 10*s.* 10*d.*; City of London Lying-in Hospital, City-road, E.C., £47 18*s.* 4*d.*; Clapham Maternity Hospital, £28 15*s.*; East End Mothers' Home, £81 9*s.* 2*d.*; General Lying-in Hospital, Lambeth, S.E., £38 6*s.* 8*d.*; Queen Charlotte's Lying-in Hospital, Marylebone-road, W., £335 8*s.* 4*d.*

6 HOSPITALS FOR WOMEN.

Chelsea Hospital for Women, S.W., £364 3*s.* 4*d.*; Hospital for Women, Soho-square, W., £239 11*s.* 8*d.*; Grosvenor Hospital for Women and Children, Vincent-square, S.W., £105 8*s.* 4*d.*; New Hospital for Women, Euston-road, W.C., £283 10*s.* 10*d.*; Royal Hospital for Children and Women, Lambeth, S.E., £215 12*s.* 6*d.*; Samaritan Free Hospital, Lower Seymour-street, W., £383 6*s.* 8*d.*

27 OTHER SPECIAL HOSPITALS.

Cancer Hospital, Brompton, S.W., £575; London Fever Hospital, Islington, N., £670 16*s.* 8*d.*; Gordon Hospital for Fistula, Vauxhall Bridge-road, S.W., £28 15*s.*; St. Mark's Hospital for Fistula, City-road, E.C., *nil*; National Hospital for the Diseases of the Heart, Soho-square, W., £76 13*s.* 4*d.*; Female Lock Hospital, Harrow-road, W., £239 11*s.* 8*d.*; Hospital for Epilepsy, Paralysis, and Other Diseases of the Nervous System, Regent's Park, N.W., £52 14*s.* 2*d.*; National Hospital for the Paralysed and Epileptic, W.C., deferred; West End Hospital for Diseases of the Nervous System, £115; Central London Ophthalmic Hospital, Gray's Inn-road, W.C., £57 10*s.*; Royal Eye Hospital, St. George's-circus, S.E., £172 10*s.*; Royal London Ophthalmic Hospital, City-road, E.C., £575; Royal Westminster Ophthalmic Hospital, Charing Cross, W.C., £115; Western Ophthalmic Hospital, Marylebone-road, W., £38 6*s.* 8*d.*; City Orthopædic Hospital, Hatton-garden, E.C., £115; National Orthopædic Hospital, Great Portland-street, W., £105 8*s.* 4*d.*; Royal Orthopædic Hospital, Oxford-street, W., £95 16*s.* 8*d.*; Royal Sea-Bathing Hospital, Margate, £287 10*s.*; St. John's Hospital for Diseases of the Skin, £76 13*s.* 4*d.*; Hospital for Diseases of the Skin, Stamford-street, S.E., *nil*; St. Peter's Hospital for Stone, Covent-garden, £76 13*s.* 4*d.*; Central London Throat and Ear Hospital, Gray's Inn-road, W.C., £33 10*s.* 10*d.*; London Throat Hospital, Great Portland-street, W., £33 10*s.* 10*d.*; Metropolitan Ear, Nose, and Throat Hospital, Grafton-street, W., £9 11*s.* 8*d.*; Royal Ear Hospital, Frith-street, W., £9 11*s.* 8*d.*; Dental Hospital of London, Leicester-square, W.C., £115; National Dental Hospital, 149, Great Portland-street, W., £47 18*s.* 4*d.*

29 CONVALESCENT HOSPITALS.

Metropolitan Convalescent Institution, Sackville-street, W., £603 15*s.*; Bexhill Convalescent Home, Sackville-street, W., £335 8*s.* 4*d.*; All Saints' Convalescent Hospital, Eastbourne, £383 6*s.* 8*d.*; Ascot Priory Convalescent Home, £67 1*s.* 8*d.*; Charing Cross Hospital Convalescent Home, Limpsfield, £67 1*s.* 8*d.*; Chelsea Hospital for Women Convalescent Home, St. Leonards, £43 2*s.* 6*d.*; Hahnemann Convalescent Home, Bournemouth, £23 19*s.* 2*d.*; Hanwell Convalescent Home, £26 16*s.* 8*d.*; Herbert Convalescent Home, Bournemouth, £23 19*s.* 2*d.*; Herne Bay Baldwin-Brown Convalescent Home, £33 10*s.* 10*d.*; Herne Bay Mothers' Home, £40 5*s.*; Homœopathic Convalescent Home, Eastbourne, £19 3*s.* 4*d.*; King's College Hospital Convalescent Home, Hemel Hempstead, £57 10*s.*; Mrs. Kitto's Convalescent Home, Reigate, £67 1*s.* 8*d.*; London and Brighton Female Convalescent Home, £9 11*s.* 8*d.*; Mary Wardell Convalescent Home for Scarlet Fever, £105 8*s.* 4*d.*; Morley House Convalescent Home for Working Men, £177 5*s.* 10*d.*; Police Seaside Home, Brighton, £47 18*s.* 4*d.*; St. Andrew's Convalescent Hospital, Clewer, £143 15*s.*; St. Andrew's Convalescent Home, Folkestone, £220 8*s.* 4*d.*; St. John's Home for Convalescent and Crippled Children, Brighton, £95 16*s.* 8*d.*; St. Joseph's Convalescent Home, Bournemouth, £47 18*s.* 4*d.*; St. Leonards-on-Sea Convalescent Home for Poor Children, £95 16*s.* 8*d.*; St. Mary's Convalescent Home, Shortlands, £17 5*s.*; St. Michael's Convalescent Home, Westgate-on-Sea, £33 10*s.* 10*d.*; Seaside Convalescent Hospital, Seaford, £95 16*s.* 8*d.*; Warley Convalescent Cottage Hospital, Essex, £10 10*s.* 10*d.*; Friendly Societies' Convalescent Home, Dover, £19 3*s.* 4*d.*; Deptford Medical Mission Convalescent Home, Bexhill, £19 3*s.* 4*d.*

15 COTTAGE HOSPITALS.

Beckenham Cottage Hospital, £47 18*s.* 4*d.*; Blackheath and Charlton Cottage Hospital, £17 17*s.* 6*d.*; Bromley, Kent, Cottage Hospital, £33 3*s.* 4*d.*; Chislehurst, Sidcup and Cray Valley Cottage Hospital, £38 6*s.* 8*d.*; Eltham Cottage Hospital, £30 13*s.* 4*d.*; Enfield Cottage Hospital, £52 14*s.* 2*d.*; Epsom and Ewell Cottage Hospital, £57 10*s.*; Hounslow Cottage Hospital, £22 0*s.* 10*d.*; Livingstone Cottage Hospital, £57 10*s.*; Mildmay Cottage Hospital, £57 10*s.*; Reigate and Redhill

Cottage Hospital, £71 17*s.* 6*d.*; Sidcup Cottage Hospital, £38 6*s.* 8*d.*; Tilbury (Passmore Edwards) Cottage Hospital, £38 6*s.* 8*d.*; Willesden (Passmore Edwards) Cottage Hospital, £33 10*s.* 10*d.*; and Wimbledon Cottage Hospital, £33 10*s.* 10*d.*

8 INSTITUTIONS.

Establishment for Gentlewomen, Harley-street, £105 8*s.* 4*d.*; S. Saviour's Hospital and Nursing Home, £115; National Sanatorium for Consumption, Bournemouth, £86 5*s.*; Invalid Asylum, Stoke Newington, £57 10*s.*; Firs Home, Bournemouth, £19 3*s.* 4*d.*; St. Catherine's Home, Ventnor, £28 15*s.*; Friedenheim Home for the Dying, £239 11*s.* 8*d.*; and Oxygen Home, £38 6*s.* 8*d.*

56 DISPENSARIES.

Battersea Provident Dispensary, £81 9*s.* 2*d.*; Bloomsbury Provident Dispensary, £11 10*s.*; Brixton, &c., Dispensary, £46; Brompton Provident Dispensary, £21 1*s.* 8*d.*; Camberwell Provident Dispensary, £76 13*s.* 4*d.*; Camden Provident Dispensary, £12 9*s.* 2*d.*; Chelsea, Brompton, and Belgrave Dispensary, £38 6*s.* 8*d.*; Chelsea Provident Dispensary, £11 10*s.*; Child's Hill Provident Dispensary, £10 10*s.* 10*d.*; City Dispensary, £115; City of London and East London Dispensary, £23 19*s.* 2*d.*; Clapham General and Provident Dispensary, £24 18*s.* 4*d.*; Deptford Medical Mission, £14 7*s.* 6*d.*; Eastern Dispensary, £30 13*s.* 4*d.*; East Dulwich Provident Dispensary, £28 15*s.*; Farringdon General Dispensary, £42 3*s.* 4*d.*; Finsbury Dispensary, £50 15*s.* 10*d.*; Forest Hill Dispensary, £36 8*s.* 4*d.*; Greenwich Provident Dispensary, £22 0*s.* 10*d.*; Hackney Provident Dispensary, £10 10*s.* 10*d.*; Hampstead Provident Dispensary, £38 6*s.* 8*d.*; Holloway and North Islington Dispensary, £47 18*s.* 4*d.*; Islington Dispensary, £43 2*s.* 6*d.*; Kensal Town Provident Dispensary, £9 11*s.* 8*d.*; Kensington Dispensary, £57 10*s.*; Kilburn, Maida Vale, and St. John's Wood Dispensary, £36 8*s.* 4*d.*; Kilburn Provident Medical Institution, £28 15*s.*; London Dispensary, £19 3*s.* 4*d.*; London Medical Mission, Endell-street, £91 0*s.* 10*d.*; Margaret Street Infirmary for Consumption, *nil*; Metropolitan Dispensary, £44 1*s.* 8*d.*; Notting Hill Dispensary and Maternity (Provident), £8 12*s.* 6*d.*; Paddington Provident Dispensary, £34 10*s.*; Pimlico Provident Dispensary (Lupus-street), *nil*; Portland Town Dispensary, £16 5*s.* 10*d.*; Public Dispensary, £38 6*s.* 8*d.*; Queen Adelaide's Dispensary, £17 5*s.*; Royal General Dispensary, £23 19*s.* 2*d.*; Royal Pimlico Provident Dispensary, £60 7*s.* 6*d.*; Royal South London Dispensary, £38 6*s.* 8*d.*; St. George's and St. James's Dispensary, £46; St. George's, Hanover-square, Provident Dispensary, £28 15*s.*; St. John's Wood and Portland Town Provident Dispensary, £28 15*s.*; St. Marylebone General Dispensary, £33 10*s.* 10*d.*; St. Pancras and Northern Dispensary, £29 14*s.* 2*d.*; South Lambeth, Stockwell, and North Brixton Dispensary, £43 2*s.* 6*d.*; Stamford Hill, Stoke Newington, &c., Dispensary, £50 15*s.* 10*d.*; Tower Hamlets Dispensary, £36 8*s.* 4*d.*; Walworth Provident Dispensary, £10 10*s.* 10*d.*; Wandsworth-common Provident Dispensary, £7 13*s.* 4*d.*; Westbourne Provident Dispensary and Maternity, £12 9*s.* 2*d.*; Western Dispensary, £55 11*s.* 8*d.*; Western General Dispensary, £119 15*s.* 10*d.*; Westminster General Dispensary, £33 10*s.* 10*d.*; Whitechapel Provident Dispensary, £19 3*s.* 4*d.*; and Woolwich Provident Dispensary, £10 10*s.* 10*d.*

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Cholera and Plague in India.—The Famine.—The Pasteur Institute for India.—The Medical Officer of Health of Calcutta and the Corporation.—The Bombay Plague Commission.—The Fecundity of the Natives of India.

AN epidemic of cholera in several parts of India seems to have taken the place of plague. In Bombay it is increasing, and the deaths amount to about 400 per week. Several Europeans have succumbed and the disease has broken out among the bluejackets of H.M.S. *Magdala*. At Poona, also, the Shropshire Regiment has suffered, and an outbreak has occurred at the Deccan College. In Calcutta the number of cases is only slightly above the average—from 16 to 20 a week being the usual number.

An increase in plague is reported this week, the number of deaths for the whole of India having risen from 198 to 251. Of these Calcutta reports 86; Bombay city, 73; Bombay districts, 21; Bengal districts, 14; and Mysore, 57. There are indications that plague is reviving. It is increasing in Mysore, and the number of deaths from plague in both Bombay city and Calcutta represents a high minimum. This time of the year has generally shown the lowest returns, although the terrible outbreak at Poona last year considerably altered the usual figures. One explanation offered for this seasonal vicissitude is that during the cold weather the poor live more indoors and sleep crowded together in stuffy rooms. The Poona outbreak may be cited against this theory as may the outbreaks at Karachi and Calcutta in the increasing heat of the spring months. The continued high mortality in Calcutta is not explained by the existence of any epidemic disease. It is higher than last year. The number of deaths recorded as due to plague or suspected plague do not quite account for the excess. I am inclined to believe that there must be more plague extant than is recorded. With the defervescence of an outbreak many cases show less typical features, and it is very probable that the inquiries made after death fail to discover many of the cases. Whether this be the true explanation or not the continued high general mortality is very ominous.

The number of people in receipt of famine relief is still over 6,250,000. Of these 3,500,000 are on relief works, and the remainder are receiving gratuitous relief. The greatest distress is in the Central Provinces. A most generous gift has been made by the Maharaja of Jaipur of 15 lakhs of rupees (equal to £100,000) towards an "Indian People's Famine Trust." The income arising from this is to be applied for the purposes of charitable relief in seasons of general distress in any of the territories subject to the Lieutenant-Governor of Bengal. The prospects of the monsoon during the past week have brightened considerably. Heavy rain has fallen in many of the distressed districts and favourable news for the continuance of the rains is brought by the ships arriving at Bombay. The rainfall in Bombay city exceeded eight inches in 24 hours on July 31st.

I am pleased to be able to notify that on and after August 9th the Pasteur Institute of India will be open and all officers and soldiers bitten by rabid dogs are accordingly to be sent for treatment to Kasauli. The regulation authorising the despatch of officers and men to Paris becomes inoperative after the above date.

The medical officer of health of Calcutta (Mr. J. Nield Cook) has been prohibited from giving a course of lectures on hygiene at the Medical College. The corporation consider that he must devote the whole of his time to the duties of health officer. I understand that Mr. Cook has previously for the convenience of Government given the course of lectures, but it now appears that he has no right or privilege to do so. Notwithstanding that the suggestion for a further course emanated from the Government the Municipal Commissioners refused their sanction and then the Government replied that any claim put forward by the health officer to undertake outside work was quite untenable. As the Government of Bengal in withdrawing the proposal make the following observation—viz., that "the sole question was whether in a temporary emergency to meet the convenience of Government the Commissioners would place his services at the disposal of Government for the purpose of delivering the lectures on hygiene," I think that Mr. Nield Cook has hardly been fairly treated.

It is reported that the Commission which the Bombay Government recently appointed for the purpose of inquiring into the complaints as to the bad after-effects of inoculation against plague in Dharwar, Gadag, and Hubli have completed their work. Their report has not yet been published. Inoculation is still proceeding briskly in the Jullunder and Hoshiapur districts of the Punjaub, where it appears to have found much favour with the people. Elsewhere throughout India it is practically at a standstill.

The fecundity of the natives of some parts of India must be very high. In Bengal the birth-rate recorded for 1899 was 42·96 per mille and this notwithstanding the admittedly faulty nature of registration. In Madras some of the registrars appear to think that the deaths of infants under one year of age are too insignificant for registration. It is interesting to observe that the months of the greatest number of births are those from October to March. The figures for Bengal being on a large scale show unmistakeably, therefore, that the first six months of the year are accompanied by an increased virility. The high birth-rate which rules in most parts is counterbalanced by an almost correspondingly high death-rate. In Calcutta and Bombay the birth-rate is very low, partly because of the comparative paucity of women but also because pregnant women go to their native country before the time of childbirth.

August 2nd.

EPSOM COLLEGE.—Students educated at Epsom College had a gratifying amount of success at the recent Preliminary Scientific Examination of the University of London, for out of 14 candidates only two failed. Of the 12 who passed four were in Division 1, three were in Division 2, one passed in chemistry and physics, and four passed in biology. Moreover, both of the two Epsom candidates passed the Intermediate Science Examination—one in each class, two passed the First Conjoint Examination, and 16 out of 20 passed the Matriculation Examination.

THE LANCET.

LONDON: SATURDAY, AUGUST 25, 1900.

THE County of London is a big place to keep under such control that every part of its machinery may work in accordance with the requirements of public health and comfort. From the point of view of the number of persons within its area, and of the number of great industries pursued in that very congested area, the county of London surely holds the premier position amongst the cities of the world. All the more satisfactory is it to find that its administration is efficient, judging from the annual reports of the chief officer of the Public Control Department of the London County Council. From these reports a very fair idea may be gained as to how the various organisations of modern life and toil in the metropolis are regulated, and, though we may think it our duty to point out one or two places where stricter control is required, we are glad to think that year by year the story is one of progress. Such, at any rate, is the conclusion to which the annual report just issued would guide us.

Not the least important of the public powers and duties vested in the London County Council is the management of affairs in connexion with coroners and their courts. The appointment of coroners and payment of their salaries, the settlement of their districts, the regulation and payment of the cost incurred, and the provision and maintenance of the courts for the purpose are under the control of the London County Council. It would appear that during the year 1899 8271 inquests were held in London, which represents a rate of 1·8 per 1000 of the estimated population of 4,500,000. These results show an increase of 10·6 per cent. upon the number of inquests in the previous year (1898). The ratio of males to females upon the bodies of whom inquests were held was about 1·5 to 1, or half as many males as females. Commendable progress is apparently being made by the London County Council with the further provision and maintenance of proper accommodation for the holding of inquests. Mortuaries and post-mortem rooms are erected by consent of the sanitary authorities. The Council, however, as in other departments can bring the various vestries to a sense of their duty in this matter if such consent is in any way irrationally withheld. During the past official year several mortuaries have been erected and coroners' courts provided, while accommodation for the holding of inquests has been improved in certain places. Still more satisfactory is it to note that during the last year the Council has succeeded in putting a stop to the objectionable practice of holding inquests in public-houses. The practice became common undoubtedly on account of the utter want of special accommodation for this purpose. London is still in need of more accommodation for the holding of inquests, but Londoners may congratulate themselves that the day of public-house inquests is over and that little Swills no longer gives his lurid performances in the Sol's Arms.

A curious point is considered in the report as to the growing practice of weighing paper with goods purchased. The purchaser of, for example, one pound of tea often obtains, according to the chief officer of the Public Control Department of the London County Council, less than, say, 15½ ounces of tea and more than half an ounce of paper. This deficiency becomes a large item when the great number of sales of small parcels of tea and other commodities in this manner is considered. It amounts, in fact, to nearly 4 per cent. and represents a loss probably exceeding half a million sterling to the public in the course of a year. According to the Merchandise Marks Act it is contrary to the Act to sell as one pound of tea a package marked as containing one pound but which contains less than one pound, although with its wrapper it weighs one pound or more. On the other hand, it is not contrary to the same Act to sell as one pound of tea less than one pound when it is printed on the package that the tea and wrapper together weigh one pound. The Weights and Measures Acts decide that it is not fraud to sell as one pound of sugar a package containing less than one pound of sugar but which with the wrapper weighed one pound. From recent decisions, odd as it may seem, fraud cannot be charged under the 26th section of this Act where paper is weighed with goods sold, but apparently the placing of the paper on the scales for the reception of the goods is an offence within the contemplation of the 25th section. While upon this subject it is satisfactory to be assured that continuous improvement has taken place from year to year in the accuracy of the weighing and measuring instruments in everyday use, and that the improvement was maintained last year. It is interesting, also, to notice that the number of measures of capacity submitted to the Council's offices for control has been in a greater proportion to the number of weighing instruments submitted, a fact which is stated to be due to the substitution by publicans of glass for pewter measures.

Under the Bread Act several persons were convicted for failing to sell bread by weight. Under the Shop Hours Acts no less than 113,271 inspections were made during the year ending March 31st, 1900, when 14,424 offences were discovered, but only in 132 of these were proceedings taken. In regard to recent legislation upon this subject the Council has agreed to the principle of placing a daily limit on the hours of employment in shops, and it has also approved of the reduction of hours of work for young persons from 74 to 68 per week. That excellent measure the Seats for Shop Assistants Act came into force on Jan. 1st, 1900. It would appear that in 505 cases in which sufficient seats had not been provided the inspectors were mostly successful in making satisfactory arrangements.

Thanks to the work of an energetic association, the Coal Smoke Abatement Society, and, we may add, to the repeated representations of THE LANCET on the subject, the smoke nuisance has been actively dealt with during the year; but it is a pity that the Council has only very limited powers for dealing with this very real and present nuisance, for the sanitary authorities may

apparently fail to enforce the law and may disregard with utter impunity the representations of the Council. The Council should certainly have concurrent jurisdiction in this matter with the sanitary authorities. The present state of administering the law with the view of suppressing this nuisance is not satisfactory. We are glad to see that proceedings have been contemplated or begun against all classes of offenders, steam-shipping companies, railway companies (on account of the smoke discharged from the locomotives), electric light companies, and others, to mention a few, and we hope that a public feeling will soon be created in London in favour of pure air, against which feeling the managers of factories, &c., will not wish to run counter.

It is not surprising that the chief officer of the Public Control Department of the London County Council, Mr. SPENCER, should have devoted a large portion of his report to petroleum lamp accidents, since in previous years he has conducted some practical inquiries upon the question. He notes that the number of lamp accidents during the past official year shows a considerable diminution as compared with the preceding five years. Mr. SPENCER finds it difficult to assign a definite reason for this decrease, but he would infer that it is due to the fact of a much larger quantity of Russian oil having been imported into London during the past year than in previous years, a large percentage of which is of a high flash-point. We do not believe that this is the explanation, since we have found it very difficult to obtain any other oil than the so-called low flash-point oil at the oilshops. We are rather inclined to the view that the danger of employing a cheap and defective lamp is gradually becoming realised by the poorer classes amongst whom these accidents invariably occur.

The report relates to a very important section of the municipal affairs of the greatest city in the world, and therefore involves matters of interest and concern to an enormous number of people. It deals with facts and affords infinitely more instruction than abstract discussion could ever do in a number of related questions.

SCURVY has been known from the earliest times and has prevailed particularly in armies in the field and among sailors on long voyages. From the early part of this century, however, mainly owing to the efforts of Dr. LIND, and to accumulating knowledge of the conditions upon which the disease depends, scurvy is now not nearly so frequently met with as it was formerly. This is well exemplified by the opening words of a paper on "The Etiology of Scurvy" which we published on August 4th (p. 321). The author is Staff-Surgeon W. E. HOME, R.N., and he says: "I should like to offer some remarks ..... and to submit a suggestion as to the etiology of this important disease which has become so rare that I cannot be quite certain that I have ever seen a case." Such a remark from a naval surgeon is the strongest evidence of the enormous decrease in the prevalence of the disease, but the fact that in spite of the large fields that have been offered for the study of scurvy much doubt still exists in regard to its etiology and pathology makes it delicate for the medical profession to claim much scientific credit for the improved condition of things. Some recent work, however, has been of great value.

We have recently published three papers dealing with the subject, one of which we have already referred to; another by Mr. FREDERICK G. JACKSON and Dr. VAUGHAN HARLEY[1]; and the third from the pen of Professor A. E. WRIGHT of Netley appears in our present issue. Mr. JACKSON and Dr. VAUGHAN HARLEY reviewed the work done by previous observers, and came to a conclusion which is decidedly contrary to views which had hitherto been held by other authorities, namely, that neither lime-juice nor fresh vegetables prevent scurvy or cure it, that it is not the absence of these which is the cause of the disease, but that scurvy is a disease produced through the eating of tainted food. This view, that scurvy is essentially due to poisoning by the ptomaines of tainted animal food, was first propounded by Professor TORUP of Christiania. Mr. JACKSON and Dr. VAUGHAN HARLEY maintain that before giving to lime-juice the credit of having practically swept away scurvy from the naval and marine services it is necessary to remember that other causes have at the same time been at work to promote health, such as improved sanitation, better quarters for the men, shorter voyages owing to the enormous increase in the use of steam, and above all better food. They further consider that evidence has shown in certain instances in which men have unwillingly experimented on the effects of ptomaine poisoning that scurvy is produced by the eating of tainted meat and not by the want of fresh vegetables. In order to confirm or negative this view it was decided to carry out some experiments. Monkeys were therefore fed on a certain brand of tinned Australian beef. The experiments were divided into three groups. In the first the monkeys were given daily, together with boiled rice, 50 grammes of meat from a freshly-opened tin together with maize; in the second group the same food matters were given but the meat was obtained from tins which had been opened for a few days and had stood in the laboratory; in the third group the monkeys were given exactly the same diet as in Group 2, except that each received daily either an apple or a banana. In the first group no signs of scurvy appeared, but in the second and third symptoms showed themselves which Mr. JACKSON and Dr. VAUGHAN HARLEY considered were characteristic of scurvy. They concluded that their investigations afforded important confirmation of results derived from Arctic experience—viz., that the presence of fresh vegetables or lime-juice is not alone sufficient for the prevention or the cure of scurvy and that we must regard the condition of the food in general, and especially the state of preservation of the meat, as the essential factor in the etiology of the disease. Staff-Surgeon HOME, who is now with the China fleet in charge of the hospital ship *Jelunga*, disputes these conclusions, maintaining that lime-juice and fresh vegetables prevent scurvy by acting as antiseptics. He points out that Mr. JACKSON and Dr. VAUGHAN HARLEY in their experiments did not take care to administer

[1] THE LANCET, April 28th, 1900, p. 1124.

ptomaines only. As the "sour-smelling meat" on which they fed the second lot of monkeys had not been sterilised, the monkeys received not only ptomaines but also the living bacteria which produced the ptomaines. Basing his arguments on grounds similar to those adopted by Dr. WILLIAM HUNTER in his papers on the Etiology of Pernicious Anæmia,[2] Staff-Surgeon HOME asks "What is there in these experiments to prevent us from believing that the bacteria of putrefaction were taken alive into the mouths of the monkeys, there infecting the sordes round the teeth and setting up gingivitis, going on to ulceration, infecting also the gastro-intestinal canal later, these parasitic infections setting up the anæmia on which all the other symptoms of scurvy depend?" Staff-Surgeon HOME by his own confession is a theorist as to scurvy, but he makes out in his paper a strong case for the value of lime-juice as a preventive.

Professor WRIGHT places on record the results of a series of examinations of the blood of patients suffering from scurvy, his paper being a continuation of his previous investigations into the matter. The line of thought which runs through the paper is that the scorbutic condition is a pathological one which is induced by a dietary consisting of meat and cereals to the exclusion of green vegetables, tubers, and fruits. Inasmuch as the food-stuffs which are excluded from the dietary in question are those containing an excess of bases over mineral acids, while the food-stuffs (meat and cereals) remaining are those containing an excess of mineral acids over bases, it is obvious that the scorbutic condition is one which supervenes upon the ingestion of a considerable excess of mineral acids over bases. It would, in view of this consideration, seem probable that scurvy is a condition of acid intoxication very similar to the acid intoxication which can be experimentally produced in herbivora by the ingestion of a surplus of mineral acids. Professor WRIGHT further urges that justification of this theory is afforded by the consideration that the scorbutic condition is remedied or alleviated by the addition to the scorbutic dietary of any one of a whole series of different substances—tubers, green vegetables, decoctions of leaves and growing shoots, &c.—substances which contain an excess of bases over mineral acids. The results of the treatment of the cases recorded in Professor WRIGHT'S paper entirely bear out this theory. In all the cases the alkalinity of the blood was shown to be strikingly reduced and a marked amelioration of the condition followed upon the exhibition of lactate of soda and other similar substances. The treatment adopted by Professor WRIGHT in the cases which he records yielded most satisfactory results, and his method will no doubt be extensively followed.

WE published in our columns last week a full report of the proceedings at the extraordinary meeting of the governors and subscribers of the National Hospital for the Paralysed and Epileptic held on Saturday, August 11th; and in a leading article we pointed out that the attitude taken up by the board of management towards the two questions before it—viz., whether the hospital was properly managed, and whether the medical staff should be represented on the board—was contradictory. The board of management, being accused of maladministration, replied that inasmuch as it has itself examined the condition of its house and finds it in good order no other investigation is necessary, thereby constituting itself its own judge. The same board being asked to admit to its counsels representatives from the medical staff replied that this would be impossible, because if the medical staff were accused of defaulting in their duty in any way they would thus be placed in the impossible position of trying themselves. A board capable of committing itself after due deliberation to such illogical opinions, whatever its faculty for collecting money may be, is in want of reinforcement. It needs to have a little common sense infused into its counsels; and we trust that not only all the medical profession, whose views may be looked upon as interested, but also all the public who are in possession of the facts, will consider that the help which the board requires will come best from the distinguished medical staff of the hospital. They are willing and especially able to assist the board, and the presence of certain of them on the board would prevent the recurrence of the unseemly language used by certain of the speakers at the recent extraordinary meeting. This would be a good thing for the hospital, as appears from the letter on page 630 of our issue to-day, signed "A Life Governor."

No one reading our report of the proceedings at the extraordinary meeting can fail to be struck with the want of common civility displayed by certain of the speakers towards the medical staff who discharge the scientific work of the hospital. The medical staff abstained from attending the meeting for reasons which they made sufficiently clear in our columns. They knew that a gathering convened at the height of the holiday season could not possibly be representative of the governors and subscribers; while their position at the meeting would have been peculiar in that, although anything they said might be listened to by the courtesy of the meeting, the constitution of the hospital would preclude them from giving any votes. The medical staff, therefore, were absent from the meeting, and the occasion became a field day for such of the governors, subscribers, and members of the board of management as were sufficiently interested to attend. Mr. GEORGE RUSSELL, chairman of the extraordinary meeting, thought that the staff of the hospital, being specialists, had so narrowed the range of their mental capacities as to be unable to exercise a trusted voice in the practical business of the hospital. Wrapping the bolus in the gilt paper of circumlocution, the chairma of the extraordinary meeting asked the assembly to believe that the medical staff of the National Hospital for the Paralysed and Epileptic were unable to transact the ordinary business of this world. Mr. HOPWOOD, of the Railway Department of the Board of Trade, if not quite so impolite in meaning was blunter in phraseology. Mr. HOPWOOD was speaking, as he pointed out, as the man of experience. The case was one with the nature of which, he suggested, he was quite familiar, for similar situations occurred "with periodic recrudescence in almost every branch of philanthropic work." And, to show how completely he appreciated the position, he spoke of strikes and lock-outs; he told his audience that he

[2] THE LANCET, Jan. 27th (p. 221), Feb. 3rd (p 296) and 10th (p. 371), 1900.

had "never yet heard that servants in an undertaking, like, say, the London and North-Western Railway, have gone so far as to ask for direct representation on the board of directors," and gracefully compared the medical staff of the National Hospital to servants waiting upon Sir JOHN BLUNDELL MAPLE and threatening to destroy his premises unless he put two of them on his directorate. We are uncertain if Mr. HOPWOOD is a member of the board of management of the National Hospital, and we do not know where he obtained the droll familiarity with hospital management which considers a lock-out a thing of every-day occurrence; but we are sure that if he mediates at the Board of Trade between employers and employed with the delicate sympathy of manner which he displayed when discussing the relations of the medical staff to the management of their hospital he must be an awkward employé for a Government department in these thin-skinned days. Dr. SEPTIMUS GIBBON spoke on the ground that he subscribed £5 in 1858. That was very kind of Dr. SEPTIMUS GIBBON, but it gave him no right to say that the dignified and temperate letters from the medical staff which appeared in our columns and in those of the *Times* were attempts on the part of the medical staff to obtain free advertisement. The date when Dr. SEPTIMUS GIBBON was moved to give his £5 note to the National Hospital leads us to think that perhaps he is not quite abreast of the times, while his position as sanitary officer to the hospital the management of which has been impeached prevents his words from being regarded as impartial. There were other speakers who seemed entirely unable to recognise, even while they declared their high respect for the scientific standing of the medical staff, that the medical staff are an integral part of the institution to which they give their services, that they count in the treatment of the sick for as much as persons who give subscriptions, and that their knowledge of hospital affairs must necessarily be practical and intimate. We have selected for comment the remarks which offended against good taste, but the general tone of the meeting was unfriendly towards the medical staff.

We sincerely trust that, when the governors and subscribers of the National Hospital for the Paralysed and Epileptic meet in anything like representative numbers to debate the questions now at issue between the medical men and the laymen who are jointly responsible for the efficiency of the institution, they will repudiate the attitude which has been assumed by the board, and will give no hearing to those whose policy is simply to be against the medical staff. They will not allow their medical officers, through whose exertions the hospital has been raised to such a high pitch of scientific efficiency, to be labeled "self-advertisers" or "cabinet-makers"; nor will they endorse the view that a neurologist is necessarily an ignoramus away from his 'ology. The public, as well as that portion of the public which more particularly supports the hospital, will see that, if there are differences between the medical staff and the board of management, the fault may very well lie with that party to the differences which seems to be unable to treat its adversary with courtesy. The board of management complains that the circular letter from the medical staff to the governors of the hospital, dated May, 1900, alleging the administration of the hospital to be very unsatisfactory and the reputation of the institution to be in danger, was addressed to the governors and not to itself. This might have been a valid objection to the course of conduct pursued by the medical staff had the board of management shown itself in sympathy with the objects or work of the medical staff. But the board has displayed contempt alike for the common sense, business aptitude, and scientific work of the medical staff, so that the medical staff, having complaints to make, might well consider it wiser in the interests of the public to communicate them directly to the governors rather than to waste time upon the board. And now that the management of the hospital, as conducted by the board, has been impeached by the medical staff, it is necessary that there should be a full and unbiased inquiry into all the allegations.

Annotations.

"Ne quid nimis."

THE DANGER TO THE CHILD'S LIFE IN PRECIPITATE LABOUR.

A CORRESPONDENT sends us an interesting account of a woman, the mother of two children, who was confined by the roadside after about two pains of a fine, strong, lusty boy. As he remarks, precipitate labours are uncommon, and yet quite a large number of similar cases can be collected from current medical literature. The fact that in such cases the mother is often taken completely by surprise might lead to the idea that the danger to the child's life would be great. Such, however, does not appear to be the case. When the death of the child occurs from the rapidity and suddenness of the labour it must be due as a rule to one of two causes—either to the child being suffocated by falling into a closet at the time of delivery, or to the injury which the child receives from falling in cases where the woman happens to be delivered whilst standing. The first of these accidents has undoubtedly occurred from time to time. With a view to determining the effects upon the head of a child falling from different heights the following experiments were carried out by Licieux. 15 stillborn children were allowed to drop perpendicularly from a height of 15 inches on to a hard floor; in 12 of them a fracture of one or both of the parietal bones was found. In the same way another 15 stillborn infants were allowed to drop from a height of three feet and in 12 instances fractures of the parietal bones, in some cases extending to the frontal bones, were found. From these experiments it might well be supposed that children born while the mother was standing would almost certainly be fatally injured. The actual facts do not, however, bear out any such supposition. Klein of Stuttgart collected 183 cases of sudden expulsion of the fœtus. Of these, 155 children were expelled while the mother was in the upright posture, 22 when sitting, and six when on the knees. 21 cases occurred in primiparæ. Of the whole number no single child died, and no example of fracture of the bones or any severe injury occurred. Two of the infants suffered from temporary unconsciousness and one had a scalp wound with some bruising over the right parietal bone. An interesting legal case in which this question was involved is reported by Lee. An unmarried girl was indicted for murdering her illegitimate child. There were no marks of external violence but blood was found in

considerable quantity under the scalp over the frontal bones. The pericranium was separated from the bones and both parietal bones were fractured, the left in three places, the right in one place. Portions of the lungs floated in water. For the prosecution it was argued that the child was born alive and was killed by intentional violence applied to the head. For the defence it was contended that the prisoner had been taken suddenly in labour while in a standing position in the yard, and that the injury to the head was caused by the child falling upon the ground which was frozen and hard. The jury brought in a verdict of acquittal. There are several possible reasons why the sudden and unexpected occurrence of labour is so seldom attended with any injury to the child. It is probable that the majority of women under such circumstances instinctively assume as far as possible a somewhat squatting position and so the actual distance that the child falls is not great. The cord no doubt acts as a restraining force and breaks the fall, and even if it be completely torn through the descent of the child will be checked sufficiently to prevent serious injury. The occurrence of hæmorrhage from the torn cord is a possible danger. That a child may die from the accidental or intentional failure to tie the cord has been proved by several fatal cases. In 21 of Klein's 183 cases of sudden labour the cord was torn through close to the abdomen and yet in no single case was there any fatal hæmorrhage. The condition of the cord torn through by the sudden and forcible expulsion of the fœtus may well be compared to that of the cord of animals in which the mother is accustomed to gnaw it through. In both instances the vessels would be more likely to contract and retract than when cleanly cut, and the tendency to the occurrence of hæmorrhage would be very slight. An examination of the recorded cases therefore does not tend to confirm the common opinion that the danger to the child in a case of precipitate labour is considerable.

INOCULATION FOR CHOLERA AND TYPHOID FEVER.

A PARLIAMENTARY paper which has just been issued, containing official correspondence relative to preventive inoculation against cholera and typhoid fever in India, gives some interesting information on these much debated questions. Anti-choleraic inoculation was practised by Mr. Haffkine in Bengal in 1896, the cases treated being for the most part those of coolies proceeding to Assam to work in the tea-gardens. Captain J. C. S. Vaughan, I.M.S., who continued Mr. Haffkine's work, states in his report that the impression has gradually gained ground that the inoculated are not nearly so liable to be attacked as are the uninoculated. Anti-choleraic inoculation has always, so far as he knows, been voluntary and the work has increased. In Purulia he and his assistants had at first to go round the coolie depôts and inoculate such persons as they could persuade. Since then Messrs. Driver and Stainforth, the principal forwarding agents in Purulia, have given expression to a decided preference for inoculated coolies and Captain Vaughan mentions a case in which a tea-planter from Cachar arrived in Purulia, selected 200 coolies and quite spontaneously had every one of them inoculated. In the month before the date of his report he inoculated 1776 coolies. Mr. Haffkine's notes on anti-choleraic inoculation in Calcutta show that the total number of persons inoculated in the affected portions of that city was 7690, and from his statistics of the results it appears that among 654 uninoculated cases there were 71 deaths (a death-rate of 10·8 per cent.), whereas among 402 inoculated cases there were only 12 deaths (a death-rate of 3 per cent.). For every 11 deaths among the uninoculated there were therefore only three deaths amongst the inoculated. In the report of the Sanitary Commissioner with the Government of India for 1897 it is stated that preventive inoculation against cholera was carried on in Bengal throughout the year, upwards of 10,000 persons having undergone the treatment, most of whom were coolies proceeding to the tea-gardens of Assam and Cachar. In his report for 1898 the Commissioner says that if any conclusion is permissible from such figures as are available it is decidedly in favour of the operation. The portion of the Parliamentary paper which deals with the question of anti-typhoid inoculation contains some correspondence which has passed between the Indian Government and the Secretary of State for India. In 1897 the Government of India suggested that Professor A. E. Wright's system of preventive inoculation against typhoid fever should be tried on such British officers and soldiers embarking for India as might consent to the treatment. The War Office, however, raised some objections, and orders were issued that some voluntary experiments which had been carried out in India without official sanction were to be discontinued. Nevertheless the Commander-in-Chief had become persuaded of the advantage of these inoculations and strongly recommended them in the interests of the health and efficiency of the British army in India. It was known that over 2000 men were inoculated, that in no case did any bad or unfavourable symptoms follow the operation, and that only a very few (five or six) of those inoculated contracted typhoid fever subsequently. In a letter of date May 25th, 1899, the Government of India said:—

> The annual admissions per mille for enteric fever amongst British troops in India have risen from 18·5 in 1890 to 32·4 in 1897, while the death-rate has increased from 4·91 to 9·01, and we are of opinion that every practical means should be tried to guard against the ravages made by this disease. The anti-typhoid inoculations have been, we believe, on sufficiently large scale to show the actual value of the treatment, while the results appear to afford satisfactory proof that the inoculation when properly carried out affords an immunity equal to, or greater than, that obtained by a person who has undergone an attack of the disease; further, the operation is one which does not cause any risk to health. In these circumstances we are very strongly of opinion that a more extended trial should be made of the treatment.

In August, 1899, the Secretary of State for India approved of inoculation being performed at the public expense, and on March 8th, 1900, a despatch from the Government of India mentioned that "the measure had been widely resorted to."

THE EMPLOYMENT OF EPILEPTICS.

SIX years have now elapsed since the formation of the colony for epileptics at Chalfont St. Peter, Buckinghamshire, and the value of the work accomplished there is recognised on all sides. In the report of the honorary medical staff for the year 1899 it is stated that amongst the colonists "a marked improvement has been noted in the majority of instances both as regards the general state of health and the disease," and that the progress has been especially noticeable in the younger cases of both sexes, "the improvement both in their general bodily development and more particularly in their disease being highly satisfactory." On Dec. 31st, 1899, there were 63 male and 24 female colonists. Of the males about a dozen were principally employed in the building department at carpentering, plumbing, painting, bricklaying, and smith's work the remainder were chiefly employed in farm and garden work. Of the females, about 11 were usually employed in the laundry and the remainder in housework. The report of the executive committee presented at the annual meeting of the National Society for Employment of Epileptics, 12, Buckingham-street, Strand, London, W.C., contains a

brief review of the progress of the colony during the first five years of its existence, from its commencement with a temporary iron building in 1894 down to the opening of four new permanent homes by the Duke and Duchess of York in 1899. The applications for admission are in excess of the accommodation, and funds are urgently needed for the building of additional homes as well as for other purposes which the development of the colony has rendered necessary.

THE DRAPERS' COMPANY: THE "MERITS AND NEEDS" OF HOSPITALS.

IT is gratifying to report that the Worshipful Company of Drapers have sent their munificent annual subscription of £1000 to the Prince of Wales's Hospital Fund for London, and it is still more so to see that in forwarding their generous cheque they say that "they have learnt with much satisfaction that the committee have appointed visiting sub-committees consisting of persons practically acquainted with hospital management with the object of obtaining information as to the merits and needs of the various institutions. The company regard this as a most important step towards promoting the well-being of metropolitan charities and strengthening their claims on public benevolence." In having regard to the merits and needs of hospitals the Prince of Wales's Fund is following the excellent example of the Hospital Sunday Fund, though it takes perhaps a more practical way of carrying out the matter. If the public could be assured that hospitals acted discreetly in their charity there would be no end to its liberality.

TREATMENT OF SIMPLE GOITRE IN YOUNG ADULTS.

PROFESSOR GEORGE MURRAY of Newcastle contributes to the August number of the *Edinburgh Medical Journal* a valuable paper on the Medical Treatment of Some Forms of Simple Enlargement of the Thyroid in Young Adults. He states that the results appear to be scarcely as well known in this country as they deserve to be and that he had seen several cases of goitre in which operative treatment had been proposed as the only means of relief but which improved so much under medical treatment that no operation was needed. The most favourable cases for treatment were those of simple parenchymatous enlargement of the thyroid gland occurring in adolescents and young adults. In these there was a uniform general enlargement of the whole gland which came on gradually and painlessly until it attracted attention by the discomfort it caused to the patient when wearing a collar. As the enlargement proceeded there might be dyspnœa from compression of the trachea. This was probably a true hypertrophy of the thyroid gland occurring in response to some demand for an increased supply of thyroid secretion. In some cases the gland if left untreated would continue to enlarge beyond physiological limits, and to arrest this growth it was necessary to give the thyroid gland a period of enforced rest by supplying to the patient by the mouth preparations of active thyroid substance. The gland then passed into a resting condition and underwent a partial atrophy with corresponding diminution of size. This may be compared to the mammary gland during lactation, which, as soon as the child is weaned and the demand for milk ceases, returns to a resting condition and decreases in size. In selecting suitable cases for treatment it is most important to ascertain that symptoms of exophthalmic goitre, such as frequent pulse, exophthalmos, nervousness, and tremors, are entirely absent, for in cases of this disease the symptoms are often aggravated by thyroid extract. In carrying out treatment either liquid thyroid extract (15 minims) or dry thyroid (three or more grains) may be given three times a day. Each lobe of the thyroid of a sheep should yield eight grains of the dry thyroid substance. The following two cases are given as illustrative instances. Case 1.—A girl, aged 13 years, noticed after an attack of bronchitis which occurred two years previously, a swelling in front of the neck which steadily increased. On admission to the Newcastle Royal Infirmary early in February both lobes and the isthmus of the thyroid were found to be enlarged uniformly. The superficial veins in front of the thyroid were conspicuous and there was a little dyspnœa which was increased on exertion. The circumference of the neck over the swelling was 16½ inches. When pressure was made on either lobe towards the opposite side the breath-sounds became stridulous. She was treated with dry thyroid substance as above three times a day, and within a few days the goitre had distinctly diminished in size, the neck being reduced to 15 inches in circumference, and with continuation of the treatment to 14 inches. The breathing became easier in consequence and she continued to improve till on April 12th, when she left the hospital, the neck was 13¾ inches in circumference and the thyroid gland had returned nearly to its normal size. Case 2.—A lad, aged 16 years, suffered from a gradual enlargement of the thyroid for six months, the enlargement involving both the lobes and the isthmus, till he was unable to wear a shirt collar 15½ inches in circumference but could button on one of 16½ inches. He was ordered three grains of the dried thyroid three times a day and ordered to rub red iodide of mercury ointment over the goitre every night. After a month the thyroid substance was taken only once a day and after another month the ointment was discontinued. The goitre steadily diminished until it was reduced to half its size, the circumference of the neck being reduced to 14 inches.

CASE-MORTALITY IN METROPOLITAN ASYLUMS BOARD HOSPITALS.

THE Statistical Committee of the Metropolitan Asylums Board Hospitals have just issued their annual report for 1899 which as usual contains much valuable and well-arranged statistical information relating to the cases of infectious diseases treated in those hospitals during last year. The total number of admissions to the hospitals was 25,094 and considerably exceeded the number admitted in any previous year. The cases of scarlet fever, of diphtheria, and of enteric fever all showed a marked increase upon the number in the previous year. The increase in the cases of diphtheria and of enteric fever may be attributed to increased prevalence of those diseases in London, as the death-rate from each of those diseases was higher in 1899 than in the previous year. As regards scarlet fever, however, the metropolitan rate of mortality was very considerably lower last year than in any previous year on record and therefore if the increase in the admissions to the Asylums Board Hospitals was even partly due to increased prevalence of the disease, the type of disease must have been exceptionally mild. The report before us points out, however, that the proportion of total admissions to these hospitals to the total number of notified and legally admissible cases have increased from 33·6 per cent. in 1890 to 66·1 per cent. in 1899; the proportion of scarlet fever cases increased from 42·8 to 74·3 per cent.; of diphtheria cases from 17·9 to 69·7 per cent.; and of enteric fever cases from 22·5 to 40·8 per cent. The cases of scarlet fever admitted to the hospitals last year numbered 13,290, while the deaths did not exceed 353, the case-mortality being as low as 2·65 per cent., against 4·07 and 4·12 in the two preceding years. The decline in the case-mortality of scarlet fever in these Metropolitan Asylums Board Hospitals has been remarkable and constant during the past 25 years; the mean proportion was 12·68 per cent. in the five years 1875-79, whereas in the most recent

five years (1895–99) the mean proportion of case-mortality did not exceed 4·12 per cent. This marked decline may be partly due to the admission to the hospitals of a larger proportion of mild cases in recent years and partly to improved methods of treatment, but it seems impossible to doubt that it is mainly due to an alteration in the average type of the disease. Cases of diphtheria were first treated in these hospitals in the latter part of 1888, and the number of admissions have since steadily and rapidly increased from 722 in 1889 to 8676 in 1899, which exceeded by 2110 the number in the preceding year. With the increase of cases under treatment the proportional case-mortality has steadily declined from 35·0 per cent. in the three years 1889–91 to 15·7 per cent. in 1897–99; the proportion last year was 13·95, showing a marked further decline from the proportion in preceding years, in which it steadily fell from 30·42 in 1893 to 15·38 in 1898. It may be presumed that the same causes which have affected the rate of mortality from scarlet fever have also influenced the rate of mortality from diphtheria; it therefore seems impossible to attribute the marked decline in recent years, at any rate entirely, to the effect of antitoxin treatment. The number of cases of enteric fever admitted to these hospitals in 1899 (1535) was more than double the average number in recent years, and the nearest approach to so high a number since the hospitals were opened in 1871 was 869 in 1898. The case-mortality of enteric fever last year was 16·47 per cent., against 18·64 and 17·73 in the two preceding years. The case-mortality from this disease has fluctuated more or less from year to year since 1872, but has shown no marked decline; the lowest proportion was 13·20 per cent. in 1892, and the highest was 24·68 in 1875. 11 admitted cases of typhus fever are recorded in the tables, but none of them proved fatal, which suggests an exceptionally mild form of the disease. Not more than 18 cases of small-pox were admitted of which three proved fatal. Taking all notifiable infectious diseases in the aggregate, the rate of mortality resulting therefrom in the metropolis has shown a decided and marked decline since the Metropolitan Asylums Board Hospitals were established in 1870, and there is little reason to doubt that these hospitals constitute an important factor in the causation of this decline, which affords undeniable proof of improved sanitary conditions notwithstanding the constant growth of the population of London.

LAPAROTOMY IN TYPHOID PERITONITIS.

A REPORT on this question presented to the Boston Society for Medical Improvement by Dr. G. B. Shattuck, Dr. J. C. Warren, and Dr. F. Cobb, and published in the *Boston Medical and Surgical Journal* of June 28th is of great importance. It is based on 24 hospital cases of typhoid fever in which laparotomy was performed for symptoms of peritoneal infection in the years 1895–1900. Of these 17 were cases of peritoneal infection from intestinal perforation; two from threatened perforation or areas of necrotic peritoneum; one from a ruptured mesenteric gland; and one from an unknown cause, presumably intestinal perforation. In the remaining three the cause of the symptoms could not be ascertained. As the title of this annotation indicates the laparotomy was performed in cases of acute peritoneal infection, not necessarily of perforation, for no differentiation can be made between the symptoms of perforation and of general septic peritonitis otherwise produced. This, of course, was previously known, but its logical implication that the question should be discussed as that of operation for typhoid peritonitis and not for perforation seems not to have been grasped. The titles of all the previous papers refer simply to operation for perforation and this was diagnosed in all the present cases. Of the 21 cases in which a cause of the peritonitis was found seven presented sudden acute symptoms of grave abdominal infection without any premonitory ones. It is noteworthy that of these fulminating cases, which conform most closely to the hitherto established idea of intestinal perforation, only five were due to actual sudden perforation; one was not a case of perforation at all, and in the other the perforation and progress of the localised peritonitis did not cause any symptoms. In the 14 other cases distinct warning symptoms were present and preceded equally distinct diagnostic symptoms. The symptoms which marked the beginning of the peritoneal infection in the second group were various degrees of abdominal pain and tenderness, either localised or general. The importance of these symptoms was not recognised, and, therefore, as complete physical examination as might be desired was not made. In three cases it was noted that pulse and temperature were rising at this early period. The warning abdominal pain preceded the severe symptoms by from three to 60 hours. The severe abdominal symptoms which determined the diagnosis and the operation were those of general septic peritonitis—general abdominal pain, severe general tenderness and rigidity, abdominal distension, collapse, weak pulse, and anxious face. In only three cases was there vomiting. The classical fall of temperature was not often present. Of eight cases in which the leucocytes were counted four showed leucocytosis, four did not. In only two cases was obliterated liver dulness observed. The early diagnosis of peritoneal infection is important in reference to operation. Cushing has described a "pre-perforative stage" in which the symptoms (the "warning symptoms" described above) are due to the commencing involvement of the serosa.[1] A study of the above-mentioned cases and of those reported by Cushing show that abdominal pain, especially if localised, and especially in mild cases, should always be regarded as a danger-signal. It usually means peritoneal infection. This pain is most frequent in the right iliac region. Associated localised tenderness, spasm, and leucocytosis, would confirm this view. A rise of temperature usually accompanies it. But by "pain" is not meant the discomfort or uneasiness accompanying meteorism or tympanites. A special study of 70 cases of typhoid fever in the Massachusetts General Hospital shows that in the majority of cases of mild and moderately severe typhoid fever no genuine abdominal pain is complained of, even when distension, diarrhœa, and hæmorrhage are present. Out of the 21 cases recovery took place absolutely in 3 (14·3 per cent.); in another case the patient recovered from the operation and died from intestinal hæmorrhage. The present writers insist on the great importance of early operation in typhoid peritonitis, and of frequent enumerations of leucocytes in every case of typhoid fever. In the presence of abdominal pain an early count of leucocytes is necessary. When the warning "pre-perforative" symptoms are present a surgical consultation should at once be held.

THE PHYSICIAN'S DUTY.

THE *North Devon Herald* of August 16th contains a letter signed "A Physician," in which the writer lays it down as his opinion that it is justifiable for a physician to kill, or, as he prefers to call it, "to end a patient's inevitable suffering and hasten his certain death." He states with perfect calmness that he has relieved the sufferings of a good many patients in the course of 35 years' practice. So we trust has every medical man, but not in the sense in which "A Physician" evidently means it to be taken. He cites two instances in which he kept patients under chloroform for some six or eight hours until they died. With this procedure *per se* we

[1] THE LANCET, June 24th, 1899, p. 1730.

have no cause of quarrel. It is a recognised practice in cases involving great pain or suffering to keep patients under some anodyne until the end, and chloroform is as good as any other. But apparently "A Physician" gave the chloroform to kill, for he says, "I have always used chloroform ..... it arrests the heart's action in systole." We cannot see "A Physician's" line of reasoning. If he wanted to kill his patient why did he not push the chloroform, or directly that his patient was under its influence divide the medulla? According to him both the patient and the patient's friends were willing that life should be terminated. If so, why prolong the agony? We can only repeat the well-known opinion that it is not the duty of a medical man to take life.

A COMMISSION ON DYSENTERY AND ENTERIC FEVER IN ARMIES IN THE FIELD.

ON August 18th the *Carisbrooke Castle* sailed for South Africa. Among her passengers were Dr. W. J. R. Simpson, Professor of Hygiene at King's College, London, and Dr. J. Lane Notter, Professor of Military Hygiene at Netley. On their arrival at the Cape they will be met by Major D. Bruce, R.A.M.C. These investigators have been commissioned by the Government "to inquire into the nature, causation, pathology, and modes of prevention (more particularly as affecting armies in the field) of dysentery, and its connexion, if any, with enteric fever." These two diseases are of course the scourge of armies in the field and there is unfortunately no lack of cases into which research may be made, so that we may hope that the labours of the Commission will result in some means being found whereby the appalling loss of life from dysentery and enteric fever may be lessened in future campaigns.

A STUDY IN BACTERIOLOGY.

IN the July-August number of the *Bulletin of the Johns Hopkins Hospital* Dr. Harvey Cushing publishes a long and profusely illustrated paper entitled, "A Comparative Study of Some Members of a Pathogenic Group of Bacilli of the Hog Cholera or Bacillus Enteritidis (Gärtner) Type, intermediate between the Typhoid and Colon Groups." He says that in the large typhoid-colon group of bacilli very definite cultural and pathogenic peculiarities are possessed by the bacillus typhosus and the bacillus coli communis, the extremes of the group, but intermediate to these forms there is one especially recognisable sub-division, the clinical significance of which as a definite type has been much slighted. This intermediate group (including the bacillus enteritidis and its near allies) has been called the "Gärtner" group by Herbert E. Durham and the "hog cholera" group by Theobald Smith. Sanarelli's bacillus icteroides seems to belong to the same group. Norman B. Gwyn in 1898 reported in the *Bulletin of the Johns Hopkins Hospital* a remarkable case which presented all the clinical symptoms of typhoid fever, but in which no serum reaction was at any time demonstrable toward the bacillus typhosus. The subject of Dr. Cushing's communication was an organism almost identical with Gwyn's and belonging or closely allied to the hog cholera or Gärtner group; it was isolated from an abscess of the rib which appeared during convalescence from a prolonged fever of the enteric type. That a general infection had occurred was clear from the specific action of the patient's serum toward the isolated organism; there was no agglutinative reaction whatever evidenced toward the bacillus typhosus. Whether this infection was of intestinal origin and occurred through the typhoid lesions or whether it was itself the cause of the fever must remain undecided. The patient was a coloured man, 27 years of age, who was admitted into the surgical wards of the Johns Hopkins Hospital on March 1st, 1899, with a sinus on a level with the fifth rib at the edge of the sternum. From early in June, 1898, nine months before admission, he had suffered for ten weeks from what his medical attendant described as typhoid fever with a severe but typical clinical course. The bacillus was found in the pus from the sinus. It could not be distinguished from the typhoid bacillus in form or staining qualities. Dr. Cushing concludes that it might represent a division of the Gärtner group, growing less luxuriantly and more like the bacillus typhosus in various fluid media and resembling it in its pathogenic action on animals.

VACCINATION STATISTICS.

A PARLIAMENTARY return which has just been issued gives some valuable statistics relative to the working of the Vaccination Acts in the years 1898 and 1899 respectively. Section 2 of the Vaccination Act, 1898, authorised justices of the peace and police magistrates to issue certificates of conscientious objection on the application of parents who desired that their children might not be vaccinated. The Act came into force on August 12th, 1898, between which date and Dec. 31st of the same year the vaccination officers in England and Wales received more than 200,000 certificates of conscientious objection. During the following year these certificates showed a great falling off, for the number received by the vaccination officers and dated between Jan. 1st and Dec. 31st, 1899, was only 32,341, relating to 32,357 children. The total numbers of certificates of successful primary vaccination received annually by the vaccination officers from Jan. 1st to Dec. 31st were 500,314 in 1898 and 669,349 in 1899, being an increase of 33·8 per cent. in 1899. The number of births registered in England and Wales during 1898 was 923,265, and during 1899 it was 928,640. The ratios per cent. of successful primary vaccination to births registered were 54·2 in 1898 and 72·1 in 1899, an increase in ratio of 33 per cent. in 1899 as compared with 1898. These figures seem to show that the noisy opponents of vaccination are losing their influence with the public and that the outlook as regards the prevention of small-pox is proportionately improved.

SWELLING OF THE SUBMAXILLARY SALIVARY GLANDS IN PLUMBISM.

WE have recently called attention to parotitis in plumbism,[1] a condition which, though well known to French writers, appears to have been unnoticed in this country. The parotid is the salivary gland most usually involved, but others may be affected in rare instances. At the meeting of the Société Médicale des Hôpitaux of Paris on June 22nd MM. Louis Rénon and Latron described a case in which the submaxillary glands alone were affected. A painter, aged 45 years, entered hospital on March 23rd, 1900, suffering from lead colic. All the usual symptoms were present. The face was earthy and there was a characteristic blue line on the gums. The patient began to work as a painter at the age of 13 years, and had his first attack of plumbism in 1896 at the age of 41 years. He was in hospital eight months with paralysis of the upper limbs. Three months later he had gout in both great toes. In the present attack there was on admission almost complete saturnine paralysis of the right forearm. There was no albuminuria. On the 27th the submaxillary regions were swollen but painless. On each side was a rounded mass of the size of a chestnut, somewhat hard, slightly lobulated, and moveable on the deep parts. The superficial parts were moveable over the tumours and there was neither redness nor tenderness. The orifices of Wharton's ducts showed no signs of inflammation. This condition lasted for three days and then

[1] THE LANCET, Jan. 13th, 1900, p. 114.

gradually diminished, disappearing entirely 20 days after its onset. On April 2nd there appeared on the dorsal aspects of the feet and lower thirds of the legs a symmetrical bullous eruption resembling herpes zoster. It disappeared eight days after the drying up of the bullæ. The patient left hospital on April 20th free from all symptoms excepting paralysis of the extensors of the right forearm. MM. Rénon and Latron consider that the absence of signs of inflammation of the glands and of the orifices of the ducts of Wharton shows that the swellings were not due to an ascending infection of the glands from the ducts, and makes it very probable that lead was exclusively concerned in the causation. The theory is that the lead in the process of excretion by the salivary glands exercises an irritating influence on them.

NEGLECTED NOTIFICATION: A BAD EXAMPLE.

AT the Oakham Petty Sessions an unusually flagrant case of neglect to notify an infectious disease or to take the precautions enjoined by law has been brought before the magistrates. The culprit was described as a Primitive Methodist minister whose family of six children were, on the medical officer insisting on inspecting them, found to have had scarlet fever and to have reached the desquamation stage. The parents had had ample warning, for the sanitary inspector had already visited the house and had been told by the defendant and his wife that a daughter, the subject of his visit, was suffering only from nettle-rash. Charged, therefore, with failure to notify and with exposing his daughter in the public streets while suffering from scarlet fever the reverend gentleman in question may consider himself to have got off lightly with fines of £5 and £1. Ministers of religion of whatever denomination or sect are popularly supposed to be men of better education than the bulk of their congregations and to be qualified to instruct them by precept and example in their duty towards their neighbours. Those responsible for the public health of Oakham, where scarlet fever is stated to have been spreading rapidly, are to be congratulated on having, in a sense at all events, made an example of this minister, and it is to be hoped that his flock will regard his fate without sympathy. Those who may think themselves able to trace infection in their own families from contact with his family will at all events not feel disposed to subscribe to relieve him of his fine or to aid him in the purifying of a house which must need disinfection all the more from its owner's desire to regard scarlet fever as nettle-rash.

THE LONDON CHILD'S PLAYGROUND.

IT was stated recently, in the course of an inquest held upon the body of a child of seven who had been run over and killed in St. Pancras while playing in the street, that he would not have been there had it not been that it was holiday time and that his school was consequently closed. This gave occasion for the suggestion made in a contemporary that during holidays the playgrounds of all such schools as have playgrounds attached should be kept open, some provision being made for the supervision of the children at a time when they have nothing to do but to play. That the children of London and other large cities are but scantily provided with playgrounds is patent to everyone who ever walks through streets where the traffic admits of any semblance of a game being carried on or of children lingering in the roadway, and it certainly seems desirable that the playgrounds attached to the schools should be made use of at all seasons. Many schools other than board schools have no playground worthy of the name, and those who reside in proximity to them are well aware that the street is, to put it mildly, an extremely undesirable place in which to play. The children when released from lessons crowd the roadway for some time to their own danger, to the danger of passers-by from such missiles as balls, tipcats, or stones and to the anxiety and inconvenience of all drivers of vehicles, while when they have dispersed no better space is provided for them than the roadway outside their homes which may or may not be less frequented than that near their school. Without dwelling upon the hardship to those who may be made criminally or civilly responsible for injury done to the children by passing vehicles we may illustrate the dangers of the streets by pointing to the police news in the *Times* of August 16th. Out of five cases reported three were charges of manslaughter brought against drivers and two of the deaths that had occurred were those of children, neither of them being the St. Pancras case referred to above.

DISEASE OF THE MYOCARDIUM IN CONGENITAL SYPHILIS.

IT is not as yet sufficiently well known that congenital syphilis may produce grave vascular disease in children. G. Berghinz records in the *Gazetta degli Ospedale* of June 24th, two interesting cases which throw a light on the arterial and vascular lesions which may be produced in infants and which may result in death in the midst of apparent health. One case is that of an infant 18 months old who, while in apparent good health, suddenly developed a paroxysmal dyspnœa with cough and intense cyanosis, symptoms which possibly pointed to œdema of the lungs. There were no symptoms, however, of fever, renal disease, epilepsy, laryngeal spasm, or status thymicus, and the case ended fatally. The post-mortem examination disclosed syphilitic vascular lesions of a characteristic sort (arterio-sclerosis) such as occur in the subjects of congenital syphilis, and affecting especially the myocardium. No syphilitic history was ascertained in the parents, but in the second case in which the same group of symptoms occurred in a child and ended fatally inquiry revealed an undoubted syphilitic history in the child's father. Berghinz refers also to an article in the *Centralblatt für Kinderheilkunde* for June containing a summary of the post-mortem appearances in 22 cases of hereditary syphilis, in which it appeared that syphilis affected the ganglia of the heart and gave rise to a proliferation of the perivascular connective tissue of the blood-vessels in the cardiac walls which eventually resulted in arterio-sclerosis and death. It is clear, therefore, that arterial disease due to congenital syphilis may, when it affects the coronary arteries and nutrient vessels of the heart, result in rapid and sudden death when symptoms of dyspnœa and cyanosis supervene in a child otherwise apparently healthy. It is also interesting to note that many forms of cerebral palsy (hemiplegia and monoplegia) may likewise be the outcome of cerebral arterio-sclerosis when the latter occurs in the fœtus in utero or in infancy, the results appearing as various forms of paralytic idiocy and imbecility.

PUBLIC HEALTH IN TRINIDAD.

IN his annual report for the year 1899 Mr. Francis H. Lovell, C.M.G., Surgeon-General of Trinidad, says that malarial fevers were less prevalent than usual and that the general state of the public health of the colony was not unfavourable. The death-rate for the colony of Trinidad and Tobago for the year 1899 was 24·10 per 1000. The population was given as 269,478 in 1899. Yaws showed a great increase in most parts of the colony. The total number of cases treated in Trinidad and Tobago during the year was 2808, with 1193 recoveries. Hospitals for yaws have been established at Arima and in Port-of-Spain. The Arima yaws hospital, which has accommodation for 25 patients, was always overcrowded and 112 patients (with 77 recoveries) were treated here from May to December, 1899. Mr. F. A. de Vertueil,

the medical officer, says that Donovan's solution, either alone or in combination with cinchona or syrup of iodide of iron, was responsible for most of the cures in children. Out of 20 very severe cases in which thyroid extract was used 13 were cured with an average stay in hospital of about eight weeks each. Mr. E. A. G. Doyle of the Colonial Hospital had five recoveries out of eight cases treated with guaiacol in doses of 15 minims thrice daily; the remaining three patients absconded not quite cured. He says that arsenic and iodide of potassium are uncertain in their results and always require prolonged treatment, that mercury has some controlling power over the disease, but requires to be pushed to the limits of toleration in order to produce an effect, and that thyroid tabloids appear to do good, but their action is neither certain nor constant. Dr. R. C. Bennett in his report says that yaws is a dirt disease existing almost without exception in dirty people and that it is "spread by contagion and direct contact." He has made bacteriological examinations of yaws scrapings, but without finding micro-organisms pathogenic of the disease. Dr. T. B. Kenny of Tobago says that in his district fully 15 per cent. of the population suffer from yaws.

STREET NOISES.

A NEWSVENDOR was on August 14th summoned at Bow-street Police-court for shouting. Mr. De Rutzen is reported to have said that as the case was the first of the kind which had appeared in his court he would only bind the accused over to be of good behaviour and to pay costs. We must be thankful for small mercies, but why the negligence of the police in not summoning cases which they are empowered to do should result in a nominal punishment for one who is responsible for one of the greatest pests of modern life we do not know. If Mr. De Rutzen was only obliged to do his work in say the Strand instead of in the seclusion of Bow-street Police-court, we are quite certain that the number of arrests would vastly increase and we should hope that the full fines would be exacted. The constant howling of "Two o'clock winner," "Two forty-five winner," "Three o'clock winner," and so on up to 7 P.M., when the subject changes to "All the Cricket," is enough to exasperate the most placid nature and is by no means conducive to brain work. Let us, however, offer grateful thanks that the vendors of the dying Boer, of the Armenian paper, of the little penny pocket Bible, and other street toys and trifles do not yell their wares, but we sincerely hope that in future cases of news-yelling which come before Mr. De Rutzen the offenders will be mulcted in full.

MODERN VIEWS ON LOVE.

"ONCE, in a word, I was a fool: and then I was in love." So wrote a cynical seventeenth century writer with let it be confessed a modicum of truth. We have recently received two American publications which claim to show that their authors have localised love. One of these, Dr. Wallace Wood, places it in what he calls the "anterior metopic lobule." The other, Mr. John M. Dagnall, crudely states his idea thus—"Love is in the stomach not the heart." Dr. Wood's thesis, which is reprinted from the *New York Medical Journal* for June 23rd, 1900, is as follows: A "ramp" is an S-shaped curve and "every fibre and artery in the living body is a ramper. ..... The humblest worm aspires, ramps, stands upon his base, and lifts nose and feelers skyward." Darwin, it will be remembered, studied worms with peculiar care but we do not recollect that he mentions their ramping. On the other hand, we do remember that he mentions that they were quite indifferent to the loudest sounds of the bassoon. Perhaps, however, Dr. Wood's worms would moderate their rampings if he were to play to them. However to proceed. The brain, says Dr. Wood, flowers at both holes, the brain surges forward and upward, and overarching, the Psyche seems to lift up her head. The top of the forehead appears to be ever ramping heavenward or sunward and life is rampancy, perennial life is double rampancy, immortal life is supernal rampancy. We must confess that we have not the slightest idea what this last sentence means, but somehow "supernal rampancy" does not seem a thing to which to look forward. But we understand from Dr. Wood that in this godlike peak, the anterior metopic lobule, lies the centre for the higher sympathy. "As *eunoia*, or the *vis passiva*, this divine force is willingness to give your heart away; as *prothymia*, or the *vis activa*, it is uncontrollable impulse forcibly to give or *throw* your heart away." Further, "it is a divine artery through which is poured the milk of women and the blood of men; it is the navel string that connects the faithful hound to his master." A divine force which is at once a willingness to give your heart away, an artery which carries both blood and milk, and is a navel string, is, to quote Calverley, "a thing imagination boggles at." Mr. John Dagnall writes in what he calls "rhythmical phraseology." We do not find the rhythm although the sentences are cut up into lines, e.g.:—

> "But now comes the mystery of locating
> Love's permanent seat. Is it in the bosom
> Or in the stomach? It is so believed
> That the bosom hath yet Love for a tenant:
> But I can prove that Love's lease there hath
> Long since expired, and that it hath vacated
> The apartment it once occupied in the heart
> To dwell in the stomach."

Needless to say, Mr. Dagnall does not prove this remarkable thesis. If he has not already done so he had better communicate with Dr. Wallace Wood.

IN our issue of August 18th (p. 495) we referred to a report that the members of the expedition of the Liverpool School of Tropical Medicine had telegraphed that they had discovered the filaria in the proboscis of the mosquito. The actual discovery was, however, we may point out, due to two independent observers, Dr. G. C. Low working in the London School of Tropical Medicine, and Captain James working independently in India, who noted filariæ in the proboscis of the mosquito in April, 1900. Probably the telegram really meant to say that the members of the expedition had confirmed the discovery.

IN a telegram to the Colonial Office the Governor of New South Wales gives the following statistics of plague in Sydney up to August 18th, namely: Remaining for treatment August 11th, 13; admitted during the week, none; discharged recovered during the week, five; died during the week, one; remaining for treatment August 18th, seven. Total cases, 303; total deaths, 103; total discharged recovered, 193; total contacts isolated, 1707; total contacts remaining, seven; total Chinese attacked, 10; total deaths among Chinese patients, eight.

A TELEGRAM from the Officer Administering the Government of Mauritius to Mr. Chamberlain, received at the Colonial Office on August 17th, states that for the week ending August 16th seven fresh cases of bubonic plague with three deaths occurred.

A TELEGRAM from the Governor of Hong-Kong, Sir H. A. Blake, to Mr. Chamberlain, received at the Colonial Office on August 20th, states that 26 cases of bubonic plague with 26 deaths occurred last week.

IT is announced that H.R.H. the Prince of Wales has been pleased to appoint Dr. William Job Collins, L.C.C., to be a

member of the Council of the Prince of Wales's Hospital Fund for London.

THE authorities of the Paris Exhibition, 1900, have awarded to Sir F. Seymour Hadden, F.R.C.S., the Médaille d'Honneur for Engraving and Lithography in Group II., Class 8.

DR. GEORGE WM. BALFOUR has been appointed Physician in Ordinary to Her Majesty in Scotland in the place of the late Sir Thomas Grainger Stewart.

THE WAR IN SOUTH AFRICA.

WHEN we wrote last week the interest was centred in the pursuit of General De Wet by Lord Kitchener's and Lord Methuen's troops and we said that nothing short of the capture of that energetic and skilful Boer leader being an accomplished fact would remove all our doubts or put an end to the harassing raids and surprises to which the British forces have been subjected. That De Wet has again eluded his pursuers and made his escape is now beyond question. He is ubiquitous in his tactics. Presumably he will try to effect a junction with Delarey's or with Botha's force. The theory is that when closely pressed he orders his following to dissolve and meet at some distant rendezvous and that their facilities in getting supplies and their familiarity with all the topographical features of the country enable them to do this with comparative ease. Be this as it may, Mr. Kruger and his followers show no sign of being willing to submit to their fate, and there yet remain De Wet, Olivier, Botha, and Delarey to be reckoned with. Meanwhile the junction of General Buller and General French and their progress towards Mr. Kruger's last stronghold seem to indicate an attack on Botha's force and an attempt to cut off the Boers' railway communication with Lorenzo Marques. Moreover, in view of bringing the war to an end, Lord Roberts has issued an important proclamation, and has reluctantly adopted a far more severe line of policy towards those recalcitrant Boers found guilty of treacherous conduct.

Amid so much unfriendly criticism as has taken place in regard to our military operations in South Africa it will prove refreshing to the officers and men of the force to read what Colonel Tolschin of the Imperial Russian Army has to say of them, for he recognises the exceptional difficulties that had to be encountered and, speaking generally, gives high praise to those charged with the conduct of the war. He expresses his profound admiration for the British troops and evidently has the highest opinion of Lord Roberts, General French, and of many of the other generals. Colonel Tolschin does not at all agree with the attitude assumed by some of the unfavourable critics in this country. Although it is very pleasant to read such generous expressions of praise on the part of a Russian officer actually present in the field, and while we have very little sympathy with much of the captious criticism which has taken place, the fact still remains that the campaign in South Africa has taught us a good deal from which we may hereafter hope to benefit.

That there should be a large amount of disease, and more especially of enteric fever, in South Africa was only to have been expected, for this fever occurs in every campaign, and our experience in previous wars in that country must have led the medical branch of the War Office to anticipate the occurrence of a large amount of it. But it seems clear that a sudden and devastating epidemic such as actually took place was not foreseen. The time of its occurrence after the more or less worn out and badly supplied army, exhausted by fatiguing marches, had reached Paardeberg and had been exposed to all its insanitary conditions, points to that source as the beginning of that particular epidemic. It will be remembered that the enemy's forces at Paardeberg also suffered from an outbreak of enteric fever. Unfortunately its extent and severity among Lord Roberts's force were greatly augmented by the subsequent capture by the Boers of the waterworks at Bloemfontein and the inadequacy and probable fouling of the water-supply, for the sickness and deaths afterwards went up at enormous rates as compared with what they had been. It looks, therefore, very much like a case of water-poisoning on a large scale. We must, however, be content to await the results of further investigation as to the real explanation and causes of this epidemic outbreak. Be the true cause of enteric fever what it may, whether the typhoid bacillus or not, there can be no doubt that troops in the condition in which the British are described to have been were eminently predisposed to become the victims of any disease causes. The bacillus must also be much more widely distributed in nature than it is commonly supposed to be in order to account for the occurrence of all the cases of a disease which is so commonly the scourge of European and American armies in modern warfare.

Of course modern armies are composed of young soldiers of the enteric fever age, but, if we may judge by our statistical experience of the British army in India, recent arrival in a country is a more powerful factor than immaturity of age, for it is notably during the first and (though to a less extent) during the second years of his Indian service that the British soldier is most liable to contract enteric fever, after which the liability rapidly decreases. Our army in South Africa was mainly composed of young men and all were new arrivals there, so that conceding the presence of the disease-cause they made up a very susceptible material for the spread and development of this fever. The climate of South Africa is notoriously a healthy one, but it is, nevertheless, very hot during the hot season—that is at the time when our troops were in the field—and the diurnal changes of temperature are marked at the present time, which is the cold season. In addition to the enteric fever cases there has been a good deal of dysentery as well as many cases of pulmonary disease. The total deaths from disease among officers and men since the beginning of the war amount to over 5000, exclusive of those that have occurred among the sick invalided home and among the patients now in British hospitals in South Africa.

THE PORTLAND HOSPITAL.

Major-General the Honourable Herbert Eaton, 43, Upper Grosvenor-square, W., has by this week's mail (August 13th) received the following final report of the work done by this hospital since it has been in South Africa:—

Total patients received	1009
Total patients discharged	560
Total deaths	37
Patients transferred to base and other hospitals ...	412

In sending his final report Major C. R. Kilkelly, R.A.M.C., of the Grenadier Guards, principal medical officer, mentions that five of his hospital orderlies still remain on the sick list, and that in closing the Portland Hospital these have been transferred to No. 10 General Hospital (Dames' Institute, Bloemfontein). These men, Major Kilkelly adds, are all doing well, and he expects to send two if not three of them home on the transport *Canada* with the rest of the hospital staff. Major Kilkelly further reports that Nursing Sister Cox Davies has been transferred by request of the army authorities to work at Pretoria and that Nursing Sister Pretty (who had been seriously ill with enteric fever) was at the date of writing quite convalescent and was returning with Nursing Sisters Davies and Russell in the *Canada*.

The civilian medical officers attached to the Portland Hospital were leaving to visit various hospitals in Pretoria and elsewhere before sailing for England. Staff Sergeant Noble, R.A.M.C., and Staff-Sergeant Favrell, R.A.M.C., were being transferred to No. 3 General Hospital at Springfontein. Ward Orderly Private Collins had been allowed to take permanent employment on the Imperial State Railways. Ward Orderly Pottinger had been allowed to join the Langman Hospital and left for Pretoria.

The subscribers and those who are interested in the hospital will be gratified to read the following order which has been published officially by the Lieutenant-General Commanding at Bloemfontein, in respect to the work of the Portland Hospital:—

> The Lieutenant-General Commanding cannot allow the staff of the Portland Hospital to leave this station without expressing his appreciation of the good work and devotion to duty performed by all ranks therein.
>
> Bloemfontein, July 28th, 1900.

The Surgeon-General has also written a most gratifying letter of thanks to Major Kilkelly who has now transferred

his services to the new branch of the Imperial Yeomanry Hospital which has been opened at Pretoria.

THE IMPERIAL YEOMANRY HOSPITAL.

BY ALFRED D. FRIPP, M.S., F.R.C.S.

We have not had any ambulance train-load sent to us for over a fortnight, but the stream of small arrivals of Yeomanry has been kept up so regularly that, with the large staff of our new branch hospital lodging with us, the wards are kept pretty full. The second instalment has now arrived and has completed the new staff, and it is waiting here until facilities are given to it for going up to Johannesburg. We have had to turn the patients out of one of our huts so as to find sleeping accommodation for the 36 sisters and eight wardmaids, while the 80 orderlies are housed in the tents usually used by convalescent patients, and room is made for the nine medical officers in some of the other tents. As it is such a long time since we have taken in any large batch of acute cases the wards throughout the hospital are what is known technically as "light." A couple of months ago the work was so heavy that we should have been glad to have had these 36 new sisters as a reinforcement, but really now there is not enough work to occupy our own 43, and it is very much to be hoped that the new arrivals will, without much waste of time, be got on to Johannesburg.

Telegrams have just come in from Surgeon-General Wilson saying that the idea of Pretoria has been given up and that a site has been selected at Johannesburg. As a matter of fact, I believe Mr. Barnato's house has been lent for the purpose, and as it has never been occupied and contains no furniture but is complete as to the building it ought to prove very suitable. One of our sergeant-majors, who has proved himself a very good man here, went up there some fortnight ago to make preparatory arrangements, and last Tuesday Colonel Sloggett went up again, accompanied by Dr. Barclay Black, who has done such good work here as sanitary officer that it was felt by Colonel Sloggett and myself that the greatest help we could render to the new hospital would be to spare him for a time from his work here, so that he might go up and scheme out the working details of the new hospital on lines similar to those which have proved so successful here.

De Wet's swoop upon the railway last week seems to have been particularly daring and very skilfully carried out. He knew, it seems, that a quarter of a million of specie was to be taken up from Bloemfontein to Johannesburg and he lay in wait for the train in which it was to travel, allowing two other trains to pass him before he captured the one which he thought would contain the money. Luckily they had been unable at the last moment to get the money away by that train and so, though he was right in his calculations, he most fortunately failed in his object except that he has again buoyed up the spirits of his followers and dislocated our railway service. Colonel Sloggett and Dr. Barclay Black happily left here just too late to be in any danger of finding themselves among the 200 prisoners. They were delayed at Bloemfontein, and we are told that since this last swoop trains have only been allowed to run past the region of De Wet's operations during daylight. The continuance of these difficulties of the railway service makes it very doubtful how soon it will be possible for any or all of the staff of the new branch to get away from here to Johannesburg. The stringency with which any but military travellers are prevented from proceeding north of Bloemfontein may be gathered from the fact that even our civilian director, who has just left us after a visit of 24 hours and who wanted to go on to Johannesburg, although he was well known in that place had to travel as a civilian medical officer. I hope he got through safely, for he was very anxious to get up there. Whether the rest of the staff of the branch hospital are able to follow him soon or not, the Yeomanry hospitals are, we hear, already represented in the Tranavaal, for Surgeon-General Wilson telegraphs that our field hospital which is established in Pretoria has detached part of its staff to open a small hospital in some building in the same town, in which, he adds, it is "doing good work." At least they will not find themselves deficient in supplies, for in addition to a lot of equipment and stores sent out from England for the new branch, a great quantity of things sent up from Cape Town for our use here has by mistake been carried on up-country, and a good deal of shortage has resulted here in consequence. For instance, for the first time in our existence we have run short of tobacco for the patients and I am afraid they will have to go without it for some few days.

From accounts of officers just down from Pretoria there seems to be very little enteric fever there or at Johannesburg, and the opinion of those who know the climate and place is that there will not be any increase in that disease until the spring weather sets in at the end of September, when we ought, they say, to anticipate an even heavier epidemic than the one which is just dying out. Unless, as we all hope, the war has ceased and the bulk of the army has been got out of the country by that time—though as we are already within two short months of it—it is none too soon for precautionary measures to be taken.

What with the arrival of so many new faces and the departure of several of the faces we are accustomed to there is quite an air of change about this place. From among our staff Mr. Raymond Johnson and Dr. Saunders have gone home this week and Mr. Turner and Mr. Thornton have gone down to Cape Town to take over the work of the hospital at Maitland Camp in view of the probable re-massing there of the Yeomanry prior to their departure from the country. Three sisters also are going. Mr. Newland-Pedley, Mr. Hay, and Mr. Ayre Smith have already left us some time ago for home. Mr. Parker has been back at work some time and Mr. Blathwayt has just returned after several weeks' imprisonment in the scarlet fever camp, but Dr. Elliot and Mr. Greenfield, though quite convalescent, have not yet recovered sufficient strength to return to work. In our sisters' sick ward there are several of our own sisters slightly indisposed, but the only serious case is that of a nursing sister whom we were asked to "take in" from De Aar. She had enteric fever, but there was no accommodation or facilities for nursing her at that place and therefore our sisters' sick hut has proved a godsend to her. I am glad to say that she is doing well.

A smart epidemic of what has now become known as "Karoo-itis" has been going the round of the new-comers from England with just the same symptoms as were presented by those of our own staff who were attacked when we first came here. One at least of the many reputed causes of this complaint has disappeared since then—namely, the hot weather; and if a similar process of exclusion can, by comparing notes with other places—for the disease has affected a very wide area—be applied to some of the other theories, we shall perhaps arrive at a true explanation of its cause, and then I hope we shall know how to prevent these distressing symptoms. At present we certainly do not.

The high wind continues and is a great nuisance in many respects, as we have been quite unable to get the large tent which formed the body of the church to stand up, and as only 50 persons at the most can be crowded into the small wood-and-iron structure which hitherto has been looked upon as the chancel we have had to enlarge it, a process which was easy, thanks to the method of construction of the huts in ready-made sections. All the name-boards are stuck up outside the huts now and the interiors are in many cases most prettily decorated with cuttings from the illustrated papers which, thanks to friends at home, come to us in great profusion. Another decoration, the arrival of which has given very great pleasure, is a large signed portrait of the Princess of Wales which Her Royal Highness, as president of the Yeomanry Hospital, has most kindly sent out. A concert is still given each week and at the last one a little play was produced. There is a fresh variety of talent and there are banjos and bagpipes too here now, so that music is generally to be heard in some part or other of the camp throughout the day. One comes upon listening groups outside the tents and huts, several of the audience being busy meanwhile with needlework and woolwork of one sort or another. At the present moment no fewer than 70 patients are working themselves gorgeous belts.

P.S.—Since dictating the above a later telegram has come from Surgeon-General Wilson saying that Lord Roberts has decided after all to have the branch hospital located in Pretoria. It is a splendid thing that Major Kilkelly's services have been secured. His services to the Portland Hospital were of the greatest value and conduced not a little to the success of that institution, and it is most fortunate that its disbandment has come just in time to enable Major Kilkelly to become commandant of our branch hospital.

Deelfontein, July 30th.

CAPTURE OF THE IMPERIAL YEOMANRY FIELD HOSPITAL.

Major C. Stonham, writing on July 6th, sent to Lady Georgiana Curzon an interesting account of the capture and subsequent release of the Imperial Yeomanry Field Hospital

at Roodeval. The letter has been submitted to us and we are glad to give the following extracts:—

"The Imperial Yeomanry Field Hospital and Bearer Company, Camp, Pretoria, July 6th, 1900.

"On June 6th we camped two or three miles beyond Nerfontein—i.e., on the Roodeval side—having come up with 14 scouts under Sergeant May of the New Zealand Contingent. These men camped close to us. We heard at Kroonstadt that the Boers were about, and this evening on camping were told that Captain Knight, D.A.A.G. Imperial Yeomanry (who left Bloemfontein two days after we did), and the men with him had been captured by the Boers about four or five miles further on our line of march; but we hear so many rumours that now we hardly take any notice of them. This time we were to find that the cry 'wolf' was well justified.

"*June 7th.*—Reveille at 5.30. Shortly after we had started the scouts, who had camped near us, came galloping by and made for the crest of some rising ground ahead of us. When we had almost reached this point the scouts, who had remained mounted on the ridge, came galloping back in a procession with the Boers—Boers behind. The Boers fired on the scouts, who made for our wagons, and in spite of our orders to the contrary fired from the other side of them, thus drawing the Boer fire on us. A horse was shot in the leg just in front of me and one bullet passed between a driver's legs and the box of the wagon; fortunately no harm was done. As the wagons were moving from the high ground I rode along them (Hale was seeing after a broken wagon) and ordered the men to wave the flags. As soon as this was done the Boer fire ceased and I was assured by an officer later that they ceased firing as soon as they saw we were an ambulance. When I had reached the last wagon but two I saw the Boers had come up and taken possession and one came riding towards me and directed me to their lieutenant. I found him with about eight Boers by our last wagon, with one scout as a prisoner. He behaved very courteously, regretted that we had been fired on, but said that we must halt our convoy and wait for the general's orders. He had one of our conductors a prisoner, but on my pledging my word that he should not act in any way against the Boers the lieutenant at once handed him over. While we remain halted before going on to the station, about a quarter of a mile distant, I will tell you what we found (subsequently) had actually happened.

"About 150 of the 4th Derby Militia had been trying to hold the station, which they had roughly protected with bags of mails, clothing, &c. The rest of the regiment—about 600—had been attacked in their camp under the kopje. For some reason or another these men had camped at the foot of the kopje and had fought there instead of on the top, although some men were posted there also. At reveille the Boer guns had shelled them and had thus got them most completely, shelling them out of rifle range, or nearly so, and as the Derbys had no gun they were completely at the mercy of the Boers. These men gave it up by 10 A.M. During this attack one Boer gun was engaging the station, but the Derbys remained behind their improvised defences and did not attempt to come out in extended order and capture the gun. At about 11 A.M., when the main body had capitulated, the Boers brought up another gun and shelled the station, which capitulated about 12 o'clock. It was then we drew into the dip, as we thought the gun was being trained on us. As soon as the firing had ceased we marched to the station, although De Wet had not sent orders for us to move, where we found General De Wet, Commandant Faurie, and about 200 Boers. I am sorry I am not of a literary turn of mind, so that I might adequately describe to you a scene which none of us are likely to forget. The bags of clothing, mails, provision boxes, indeed anything which would answer the purpose, had been piled up between the station sheds to form a defence against the shells. The railway trucks were splintered and in places shattered by shell and rifle bullet. The Boers were busily engaged in looting. About 2000 mail bags were being torn open, and letters, parcels, and all conceivable things were scattered out, being tossed from hand to hand and duly investigated. Warm clothing and blankets seemed to attract special attention, most of the Boers carrying off some. Cigarettes, tobacco, socks, cocoa, and milk, and luxuries of all kinds simply littered the place. On the siding were heaps of shells of all kinds, huge lyddites of 280 lb. each, many howitzer shells, shrapnel, solid armour-piercing, and various others. In the tin sheds and behind the improvised defences were the dead and wounded, eight dead, including Colonel Baird Douglas. These were buried by the Derby prisoners before they were marched off, but there was no time for any formal funeral. I saw the graves subsequently neatly marked out with stones by our own men after Methuen's arrival on June 11th. The wounded (14) had been dressed with the first field dressing. This had been done by the Boer doctor, Commandant Faurie's son. I visited all these and saw that they were as comfortable as circumstances permitted. I heard then that there were many wounded in the Derbys' camp about two miles off on the other side of the river below the kopje. I at once arranged with Major Hale that the bearer company should remain at the station and bring on the wounded in the ambulances, while I went on to the camp and pitched the hospital. Commandant Faurie gave me permission to advance, and without delay the hospital moved forward to the drift across the Rhenoster, towards which also the Boers were moving with their buck wagons and guns. The guns, by the way, were some of our own which they had captured some time previously. I rode with a lieutenant who discussed the war with me, and was quite friendly, as, indeed, I found all the Boers were during the time we remained in their hands. Arrived at the river I found four bullock wagons were coming over and that many of the Boer wagons were ahead of our convoy. This necessarily meant a very long delay in our reaching the camp, a delay which might have serious consequences for the poor fellows whom we were hastening to help. On my representing this to the commandant he at once stopped the wagons and allowed all the hospital transport to pass over first. As soon as my first tin wagon, which contained our dressings, &c., had safely crossed the drift I rode on to the camp leaving the others to follow. The full extent of the disaster was now apparent—huts were riddled with bullets, ammunition, papers, provisions, clothing, were all scattered about, and were being turned over by the Boers. In the centre of the camp the dead, dying, and wounded Derbys were collected together, some moaning with pain, others crying for water, and the least severely wounded smoking and doing what they could for the less fortunate. I at once gave orders to have the dead removed to a tent, that those in pain should be given morphia, and that one of our marquees should be pitched as an operating tent, and all things prepared. The Boer commandant told me I might take any tents I liked for hospital purposes, and eventually we were allowed to keep all the huts, although they had intended to burn some of them. The Derby men were delighted at our arrival, and it is not too much to say that so far as the wounded were concerned we saved the situation, for they had but one doctor (Dr. Buchanan, a civil surgeon), who had not the appliances which were necessary, nor, indeed, could he have done the work single-handed, for we found nearly 100 wounded, many of them requiring operations. Dr. Buchanan had dressed most of the cases, and had done everything in his power to give relief.

"Meanwhile Hale was busy at the station. In order to accommodate the wounded we had to throw out of the wagons most of our provisions—a very serious matter, as we had started from Kroonstadt with only enough for four days and we did not know when we could get any more under present circumstances. Hale saw De Wet and represented to him the difficulty we might be in. De Wet at once gave Hale permission to load an empty railway-truck with food, milk, and, indeed, anything he might require. This was done and the truck was moved about a quarter of a mile along the line towards the Rhenoster. Unfortunately it was blown up with the station, the Boers evidently thinking that the bearer company had taken with them all we needed, whereas they had moved on with the wounded first and intended to return for the food immediately on arriving at the Derbys' camp, and finding out about the mishap to the truck Hale collected all the food he could find and set about arranging matters in the camp.

"By this time we were hard at work with the wounded and operations and dressings went on till far into the night, when we all went to bed thoroughly tired. My tent was riddled with bullets and splashed with blood. The next two days we were again all very hard at work in the hospital, but I need not recount to you the horrors of the operating tent. I will only say that we found our equipment most excellent. We had all we wanted and more, and everyone was delighted with the facilities we had for carrying on our work.

"On June 8th many Boers came to see us, and Commandant Duplovy came into the theatre while an operation was going on. He expressed much surprise at our arrangements and was so impressed with the work being done that he at once gave an order that no Boers were to come along the sick lines for fear of disturbing the wounded and hampering our work. I may say at once that the Boers behaved most admirably throughout, asking for next to nothing, not taking that unless permitted by us, and, as you will see if you read on, giving us much.

"I went out to see General De Wet, accompanied by Lieutenant H. Langman of the Langman Hospital, who had come up with us from Bloemfontein, and escorted by Du Wit (De Wet's secretary), Steyn, a relation of the late President, and his son. At last De Wet came—a man of powerful physique, but with weak eyes which necessitated his wearing tinted glasses in the sun, a good face, and one showing, as I thought, shrewdness and determination, a quiet, kindly manner, and the general bearing of a gentleman. He shook hands cordially, and not speaking more than a few words of English, asked me through Du Wit what he could do for me. I asked him to send my casualty list and some telegrams (one to you—did you get it?) if he had the opportunity. This he agreed to do. I also asked for a safe conduct for a sick convoy to go to Kroonstad, but he said that at present he could not accede to this but would give me one in a few days. He also said that I might come to him when I wished to, only accompanied by an orderly with a white flag. We then left him and were allowed to go right across the Boer laager, so that we had an excellent chance of seeing a good deal. I forgot to say that as soon as the bearer company had left Roodeval station on June 7th the Boers fired it. All that night the most terrific explosions took place, and these recurred at intervals until June 11th, at about 9 A.M., so that no one was allowed to go anywhere near the station. The wreck of this was complete and astonishing. The situation was merely marked by holes made by the lyddite shells, and the veldt for about half a mile round was littered with burnt clothes, blankets, mail bags, letters, parcels, unexploded shells, fragments of shells, and of the station buildings. Anything more desolate it is difficult to imagine."

NOTES FROM BLOEMFONTEIN.

(FROM OUR SPECIAL CORRESPONDENT.)

Bloemfontein is now a healthy station, while the tonic and bracing qualities of its climate render it most suitable for convalescents, to which class a large majority of the patients in the military hospitals belong. Cases of enteric fever in the garrison are now rare, and the few brought down the line from the north are of a mild type or convalescent. Sporadic cases of catarrhal dysentery are still frequent, but the ulcerative form is seldom seen, and as a matter of fact was never truly epidemic. Notwithstanding the sudden fall of temperature at sundown and the cold nights, bronchitis, pneumonia, and acute rheumatism are uncommon, though many cases of sub-acute and muscular rheumatism have lately been admitted from the front. A very large number of cases of "simple continued fever," "diarrhœa," "diarrhœa and debility," have been admitted to the various hospitals since the occupation; many of these, I think most, were probably cases of mild, ambulatory, or aborted attacks of enteric fever, and had they been so diagnosed the subsequent official statistics would show a strikingly low mortality for an army in the field—probably the lowest on record. An experienced medical officer in charge of the medical division of one of the general hospitals informs me that he kept notes of 1000 consecutive cases admitted into his division during the epidemic. Of this number over 100 had been sent in as "simple continued fever," "diarrhœa," &c., but, in his opinion, they were undoubtedly cases of enteric fever. The mortality in the 1000 cases was only a little over 12 per cent., a low one compared with the ratio in civil hospitals at home, and strikingly low compared with the ratios of the American and other armies. It must be admitted that the diagnosis of mild cases of enteric fever, especially of the ambulatory form, often presents almost insuperable difficulties out here; some cases of fever are very difficult to classify, such as the so-called "veldt fever" and "African fever." Probably a few of these are cases of Malta fever and some recent serum experiments tend to support this view, but the question is hardly ripe for discussion yet. Cases of malarial fever are frequent enough, but they occur in men who have previously suffered from malaria in India and elsewhere. None have been shown to have originated in this colony.

Of the surgical cases in the hospitals at the present moment few present features of special interest and the wounded are, almost without exception, convalescent or on a fair road to recovery.

A brief sketch of the medical arrangements in Bloemfontein at the time of writing should prove of interest to your readers in the present dearth of "interesting" cases here and may be of service in removing misconceptions.

The three general hospitals (Nos. 8, 9, and 10) and the stationary hospital (No. 5) at the Raadzaal, provide a total of over 1750 beds for the reception of sick and wounded. At present these hospitals are not nearly full. The Langman Hospital and the Irish Hospital were recently sent on to the front, while the Portland Hospital has left, or is about to leave, for home. During the epidemic of enteric fever bell-tent annexes to No. 8 and No. 9 General Hospitals were established and were employed for convalescent patients, who spent a few days there before proceeding to the convalescent or rest camps. The system worked so well that there was never the slightest overcrowding of the marquees or bell-tents. No. 8 General Hospital, a marquee hospital, occupies an excellent site on the veldt about a mile to the south-west of the town. No. 9, also a marquee, is pitched on a gentle slope about half a mile to the north-east, between the large kopje known as "Bloemfontein mountain" and the railway, and has the advantage of a special railway siding running into the camp. No. 10 is distributed amongst various buildings in the town, Grey's College, Dames' Institute, St. Michael's Home, Industrial House, and the Volks Hospital. These three hospitals, No. 8, No. 9, and No. 10, provide 1650 beds now and have surplus beds, marquees, and equipment sufficient to increase the accommodation to over 1800. No. 5 Stationary Hospital occupies the Raadzaal (House of Parliament), is fully equipped for 100 patients, and is a model of what military medical organisation can do at short notice.

The "convalescent camp"—a distinct establishment not to be confounded with the bell-tent annexes of the general hospitals—is situated on the veldt behind the fort to the south of the town; here men who are practically well, but debilitated, remain till they are fit for duty, when they are transferred to the large "rest camp" close to the station, whence they are sent back to their units or to garrison duty. The convalescent camp is in charge of a commandant and two medical officers and has a large detention ward.

Saloon trains with lying-down accommodation and medical comforts, with a medical officer in charge of each, and hospital trains—fully equipped hospitals on wheels—leave periodically for Cape Town, carrying men who are convalescent but who are unlikely to prove efficient soldiers within a reasonable period.

On the whole the arrangements for the treatment of the sick and wounded are wonderfully complete and have borne the strain of the recent epidemic with conspicuous success. As regards the alleged overcrowding of field hospitals before the establishment of general hospitals I have no personal knowledge and in any case I would refrain from comment as the matter is *sub judice*. The same remark applies to the allegations as to defects of transport, as regards which, however, it is permissible to point out that transport arrangements are not under the control of the Royal Army Medical Corps.

July 27th, 1900.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of London.—In relation to its resident, or what may be termed its night, population the City of London possesses altogether a unique interest. Much of this is doubtless due to the traditions and associations of the corporation and to the fact that the City embraces within its limits many historical and world-influencing institutions; but although looked at in contrast with the civic grandeur of the City its sanitation may be regarded by some as holding but a secondary position, there is occupying the

City by day an enormous population the environment of which is a matter of grave concern not only to the City but to the country as a whole. Moreover, there are in one or another of the 113 parishes which make up the sub-districts of St. Botolph, Cripplegate, St. Sepulchre, and All Hallows, Barking, food-distributing centres, such as Billingsgate and the London Central Meat Market, the proper control of which is a matter of considerable importance to the vast population in and around the metropolis. It is from considerations such as these that the position of the medical officer of health of the City is no mere sinecure but carries with it enormous responsibilities. The general death-rate of the City during 1899 was 18·5 per 1000 as against 19·8 for the metropolis and 20·2 per 1000 for the 33 great towns, but in the absence of a proper correction for age and sex distribution these figures for the City do not afford much indication of its sanitary condition, and the same remark, of course, applies to the other City rates. It is of interest, however, to note that of the City deaths 6·56 per cent. were the result of injury or violence, a rate which is 1·96 below the average for the previous five years. This may be regarded, perhaps, in one sense as a tribute to the City police. In the matter of public lavatories the City is relatively to other districts well provided, there being 24 such conveniences, and it is satisfactory to be able to record that the accommodation for women includes 33 water-closets. Dr. Sedgwick Saunders furnishes in his report a map of the City, showing among other things the lavatories in question, and it might prove advantageous if these maps were exhibited in certain convenient situations. There is no doubt that as regards public lavatories England is behind many other European countries. Some idea of the meat-supplies dealt with in the City may be gathered from the fact that during 1899 there was delivered at the corporation markets, Smithfield, over 405,456 tons of meat—the average supply per diem being 1321 tons, and the largest monthly supply being in December. Of the amount in question during 1899, 27·3 per cent. was "country killed" (including American meat killed at Birkenhead); 15·5 per cent. "town killed" (including American and continental cattle slaughtered at Deptford), 14·2 per cent. "foreign killed," 23 per cent. "American killed," and 20 per cent. "Australian and New Zealand killed." The most noteworthy feature of the year's statistics in this sense is the marked increase in the American and foreign deliveries. Dr. Sedgwick Saunders points out that the figures tell two tales: firstly, that London depends more than heretofore upon her dead-meat supply, and, secondly, that as the sources of supply become more and more distant the risk of decomposing meat arriving in the market is increased. The latter fact would seem to point to the necessity of some sort of preservation whether by cold or chemicals. But more rapid transit might, perhaps, modify matters a little. Upon the question of tuberculous meat Dr. Sedgwick Saunders takes a firm stand and he disagrees *in toto* with the views of certain veterinary surgeons to the effect that unless the whole mass of muscular tissue shows signs of degeneration the meat may be eaten with impunity if properly cooked. The medical officer of health of the City will have nothing to do with the thesis of "localised tuberculosis"—a proposition which he regards as based upon "the inexcusable ignorance of the elementary principles of physiological induction," and, in his opinion, "no competent pathologist would dare to assert that where pathogenic organisms have once entered the body of an animal one part of its anatomy (the muscles) is free from infection, and another part (the viscera) infected." But we expect the tendency of opinion to which Dr. Sedgwick Saunders refers may have its origin to some extent in the report of the Royal Commission on the Administrative Control of Tuberculosis which reported in 1898. The seizure of diseased and unsound meat during 1899 amounted to no less than 1172 tons, the largest amount on record. Importation of rabbits into this country is on the increase, and last year Australia and New Zealand furnished over 2,000,000 of these animals. They are imported in crates, and as many as 20,000 have been daily received, their frozen state rendering it difficult to ascertain their precise condition, and Dr. Sedgwick Saunders states that at times as many as 20 per cent. are unsound. As regards fish 179 983 tons were received at, or near, Billingsgate during 1899, the amount condemned being 0·42 per cent. There would appear to be a house-to-house inspection in progress throughout the City, and the result of such progress should be interesting reading. There must be much antiquated property within the boundaries, and it is to be expected that the housing of the day population leaves in certain instances much to be desired.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6014 births and 4520 deaths were registered during the week ending August 11th. The annual rate of mortality in these towns, which had increased from 14·5 to 20·5 per 1000 in the five preceding weeks, declined again to 20·3 during the week under notice. In London the death-rate was 20·5 per per 1000, while it averaged 20·2 in the 32 provincial towns. The lowest death-rates in these towns were 11·2 in Burnley, 11·9 in Halifax, 12·1 in Cardiff, and 12·2 in Bradford; the highest rates were 25·6 in Brighton, 26·1 in Sheffield, 26·3 in Liverpool, and 26·8 in Preston. The 4520 deaths in these towns included 1263 which were referred to the principal zymotic diseases, against numbers increasing from 346 to 1330 in the five preceding weeks; of these 1006 were referred to diarrhœa, 84 to whooping-cough, 65 to diphtheria, 64 to measles, 23 to scarlet fever, and 21 to "fever" (principally enteric). The lowest death-rates from these diseases occurred in Cardiff, Blackburn, Halifax, and Bradford, and the highest rates in West Ham, Norwich, Liverpool, Salford, and Sheffield. The greatest mortality from measles occurred in Brighton and Derby, from scarlet fever in Blackburn; from whooping-cough in Brighton and Bolton; and from diarrhœa in West Ham, Norwich, Liverpool, Salford, and Sheffield. The mortality from "fever" showed no marked excess in any of the large towns. The 65 deaths from diphtheria included 25 in London, nine in Sheffield, seven in Leeds, four in Leicester, and four in Liverpool. No fatal case of small-pox was registered during the week under notice in any of the 33 large towns. There were five small-pox patients under treatment in the Metropolitan Asylums Hospitals on Saturday August 11th, against numbers decreasing from 17 to seven at the end of the four preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 1838, against 1877, 1859, and 1827 on the three preceding Saturdays; 155 new cases were admitted during the week, against 222, 207, and 156 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 196 and 136 in the two preceding weeks, further declined during the week under notice to 128, and were 47 below the corrected average. The causes of 56, or 1·2 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Nottingham, Bolton, Oldham, Bradford, and in nine other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Birmingham, Liverpool, Salford, and Sheffield.

In 33 of the largest English towns 7074 births and 4346 deaths were registered during the week ending August 18th. The annual rate of mortality in these towns, which had been 20·5 and 20·3 per 1000 in the two preceding weeks, further declined to 19·5 last week. In London the rate was 19·4 per 1000, while it averaged 19·6 in the 32 provincial towns. The lowest death-rates in these towns were 12·7 in Bristol, 13·0 in Huddersfield, 13·8 in Burnley and in Bradford, and 14·0 in Cardiff; the highest rates were 23·6 in Salford, 23·9 in Sheffield, 24·2 in Manchester, and 25·0 in Norwich and in Liverpool. The 4346 deaths in these towns included 1061 which were referred to the principal zymotic diseases, against 1330 and 1263 in the two preceding weeks; of these 797 resulted from diarrhœa, 90 from whooping-cough, 62 from measles, 59 from diphtheria, 35 from "fever" (principally enteric), and 18 from scarlet fever. No fatal case of any of these diseases occurred last week in Huddersfield; in the other towns they caused the lowest death-rates in Bristol, Burnley, Halifax, Oldham, and Blackburn, and the highest rates in West Ham, Leicester, Sheffield, and Hull. The greatest mortality from measles occurred in Brighton and Swansea; from whooping-cough in West Ham, Nottingham, and Derby; from "fever" in Portsmouth, Swansea, and Halifax; and from diarrhœa in West Ham, Leicester, Salford, Sheffield, and Hull. The mortality from scarlet fever showed no marked excess in any of the large towns. The 59 deaths from diphtheria included 17 in London, 8 in Leicester, 7 in Leeds, and 6 in

Sheffield. No fatal case of small-pox was registered in any of the thirty-three large towns; and only three small-pox patients were under treatment in the Metropolitan Asylums Hospitals on Saturday last, August 18th. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 1793, against 1827 and 1838 on the two preceding Saturdays. 157 new cases were admitted during the week, against 207, 156, and 155 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 136 and 128 in the two preceding weeks, rose again last week to 132 but were 35 below the corrected average. The causes of 47, or 1·1 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Leicester, Nottingham, and in 11 other smaller towns; the largest proportions of uncertified deaths were registered in Portsmouth, Birmingham, Liverpool, Manchester, Halifax, and Leeds.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 17·5 and 17·2 per 1000 in the two preceding weeks, further declined to 17·0 during the week ending August 11th, and was 3·3 per 1000 below the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 13·3 in Paisley and 13·7 in Dundee to 19·9 in Leith and 24·0 in Greenock. The 526 deaths in these towns included 60 which were referred to diarrhœa, 27 to whooping-cough, 11 to measles, five to "fever," three to scarlet fever, and one to small-pox. In all 107 deaths resulted from these principal zymotic diseases, against 87 and 109 in the two preceding weeks. These 107 deaths were equal to an annual rate of 3·5 per 1000, which was 2·2 per 1000 below the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of diarrhœa, which had been 36 and 60 in the two preceding weeks, were again 60 during the week under notice, and included 39 in Glasgow, seven in Edinburgh, six in Greenock, and four in Dundee. The deaths from whooping-cough, which had been nine and 12 in the two preceding weeks, further rose during the week under notice to 27, of which 19 occurred in Glasgow, three in Dundee, two in Edinburgh, and two in Greenock. The fatal cases of measles, which had been 24 and 19 in the two preceding weeks, further declined to 11 during the week under notice, and included eight in Glasgow and two in Edinburgh. The deaths referred to different forms of "fever," which had been six and 11 in the two preceding weeks, declined again during the week under notice to five, of which four were registered in Glasgow. The three fatal cases of scarlet fever showed a slight decline from recent weekly numbers and included two in Glasgow, where the death from small pox was also recorded. The deaths referred to diseases of the respiratory organs in these towns, which had been 67 and 73 in the two preceding weeks, declined again during the week under notice to 52, but were slightly in excess of the number in the corresponding period of last year. The causes of 23, or more than 4 per cent., of the deaths in these eight towns were not certified.

The annual rate of mortality in the eight Scotch towns, which had declined from 19·0 to 17·0 per 1000 in the four preceding weeks, further declined to 16·9 during the week ending August 18th, and was 2·6 per 1000 less than the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 13·7 in Dundee and 13·9 in Leith to 19·1 in Glasgow and 21·9 in Perth. The 523 deaths in these towns included 56 which were referred to diarrhœa, 18 to whooping-cough, 16 to measles, seven to diphtheria, six to scarlet fever, and five to "fever." In all 108 deaths resulted from these principal zymotic diseases, against 109 and 107 in the two preceding weeks. These 108 deaths were equal to an annual rate of 3·5 per 1000, which was 1·3 below the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of diarrhœa, which had been 60 in each of the two preceding weeks, declined last week to 56, of which 31 occurred in Glasgow, seven in Dundee, six in Edinburgh, and five in Aberdeen. The deaths from whooping-cough, which had increased from nine to 27 in the three preceding weeks, declined again to 18 last week, and included 13 in Glasgow and two in Aberdeen. The fatal cases of measles, which had declined from 24 to 11 in the three preceding weeks, rose again last week to 16, of which 13 were registered in Glasgow and two in Edinburgh. The deaths from diphtheria, which had been five and none in the two preceding weeks, rose again to seven last week, and included three in Edinburgh and two in Aberdeen. The six fatal cases of scarlet fever showed an increase of three over the number in the preceding week, and included four in Glasgow. The deaths referred to different forms of "fever," which had been 11 and five in the two preceding weeks, were again five last week, and were all recorded in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 80, 67, and 52 in the three preceding weeks, rose again last week to 59, and were slightly above the number in the corresponding period of last year. The causes of 16, or more than three per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 18·3 and 24·0 per 1000 in the two preceding weeks, declined again to 23·0 during the week ending August 11th. During the past four weeks the death-rate in the city has averaged 22·2 per 1000, the rate during the same period being 19·4 in London and 16·8 in Edinburgh. The 154 deaths belonging to Dublin registered during the week under notice were seven below the number in the preceding week, and included 23 which were referred to the principal zymotic diseases, against five and 14 in the two preceding weeks; of these 19 resulted from diarrhœa, three from diphtheria, one from whooping-cough, and not one either from small-pox, measles, scarlet fever, or "fever." These 23 deaths were equal to an annual rate of 5·2 per 1000, the zymotic death-rate during the same period being 5·6 in London and 2·1 in Edinburgh. The deaths from diarrhœa, which had been four, four, and nine in the three preceding weeks, further rose during the week under notice to 19. The three fatal cases of diphtheria exceeded the number recorded in any previous week. The 154 deaths in Dublin last week included 45 of infants under one year of age and 23 of persons aged upwards of 60 years; the deaths of infants exceeded the numbers in the preceding week, while those of elderly persons showed a decline. 10 inquest cases and five deaths from violence were registered; and 57, or more than a third, of the deaths occurred in public institutions. The causes of six, or nearly 4 per cent., of the deaths in the city were not certified.

The death-rate in Dublin, which had been 24·0 and 23·0 per 1000 in the two preceding weeks, further declined to 21·2 during the week ending August 18th. During the past four weeks the death-rate in the city has averaged 21·6 per 1000, the rate during the same period being 20·3 in London and 16·2 in Edinburgh. The 142 deaths belonging to Dublin registered during the week under notice showed a decline of 12 from the number in the preceding week, and included 28 which were referred to the principal zymotic diseases, against five, 14, and 23 in the three preceding weeks; of these, 24 resulted from diarrhœa, three from "fever," one from whooping-cough, and not one either from small-pox, measles, scarlet fever, or diphtheria. These 28 deaths were equal to an annual rate of 4·2 per 1000, the zymotic death-rate during the same period being 4·4 in London and 2·1 in Edinburgh. The fatal cases of diarrhœa, which had been 4, 9, and 19 in the three preceding weeks, further rose to 24 last week. The three deaths from "fever" were in excess of the numbers recorded in recent weeks. The 142 deaths in Dublin last week included 37 of infants under one year of age and 30 of persons aged upwards of 60 years; the deaths of infants showed a decline, while those of elderly persons exceeded the number in the preceding week. Six inquest cases and four deaths from violence were registered; and 43, or nearly a third, of the deaths occurred in public institutions. The causes of nine, or more than 6 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon J. C. Dow to the *Dædalus*. Staff Surgeons: W. J. Maillard, V.C., to the *Archer*; H. Canton to the *Tamar*; D. T. Hoskyn to

the *Jupiter*; J. Acheson to the *Warspite* for the *Phaeton*: and R. Miller to the *Arrogant*.

IMPERIAL YEOMANRY.

14th Battalion: Sergeant Richard Galway Murray, to be Medical Officer, with the temporary rank of Captain.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Miller, Captain Riddick, and Lieutenant Gwynn are detailed for duty with the general hospital going to Ceylon for the Boer prisoners. One warrant officer and 59 men under the charge of Lieutenant W. Jagger, have embarked on the s.s. *Aurania* for South Africa. Lieutenant A. D. Jameson has joined the hospital ship *Princess of Wales* for duty.

INDIA AND THE INDIAN MEDICAL SERVICES.

The Queen has approved of the following promotion among the officers of the Indian Medical Service:—To be Surgeon-General: Colonel George William Robertson Hay, Bombay Establishment. The Queen has also approved of the retirement from the service of the under-mentioned officers:—*Bengal Establishment:* Colonel John Henry Newman. *Madras Establishment:* Surgeon-General Charles Sibthorpe, C.B., and Lieutenant-Colonel James William Evans.

VOLUNTEER CORPS.

Artillery: 1st Essex (Eastern Division, Royal Garrison Artillery): Surgeon-Lieutenant C. Forsyth to be Surgeon-Captain. 1st Renfrew and Dumbarton: Surgeon-Captain W. R. Sewell to be Surgeon-Major. *Royal Engineers* (Volunteers): 1st Sussex: Surgeon-Captain W. P. Morgan resigns his commission. *Rifle:* 1st Volunteer Battalion the Lincolnshire Regiment: Surgeon-Lieutenant J. W. Nicholson to be Surgeon-Captain. 9th Lanarkshire: Surgeon-Lieutenant T. W. Banks to be Surgeon-Captain.

VOLUNTEER OFFICERS' DECORATION.

The Queen has conferred the Volunteer Officers' Decoration upon the undermentioned officers of the Volunteer Force:—*Home District: Rifle:* 4th Volunteer Battalion the East Surrey Regiment: Surgeon-Lieutenant-Colonel Edmond James Lawless. *North-Western District: Engineers:* 1st Flintshire (Buckley) Royal Engineers (Volunteers): Surgeon-Major Robert Thomas Alexander O'Callaghan. *Rifle:* 2nd Volunteer Battalion the King's (Shropshire Light Infantry): Surgeon-Major Charles Henry Gwynn. 2nd Volunteer Battalion the Prince of Wales's (North Staffordshire Regiment): Surgeon-Major Herbert John Fausset. *Western District: Artillery:* 1st Cornwall (Duke of Cornwall's) Volunteer Artillery (Western Division, Royal Garrison Artillery): Surgeon-Lieutenant-Colonel William Mason.

TRANSVAAL WAR NOTES.

Mr. J. Paul Bush, M.R.C.S.Eng., L.S.A., surgeon to the Bristol Royal Infirmary, who has been in medical charge of the Princess Christian Hospital, sailed from Durban on August 6th, having under his care the sick and wounded troops on the *Lismore Castle*. He is due to arrive in Bristol the first week in September.

The Welsh Hospital is now completely established at Pretoria after its transfer from Springfontein, and 122 patients were admitted on August 14th. At a meeting of the executive committee of the hospital held on August 15th it was decided to erect memorial crosses over the graves of those members of the staff who had died at Springfontein.

Of the 180 invalid soldiers from South Africa who arrived in Plymouth last week only 38 are being treated at the Military Hospital, Devonport. The remainder have been sent to the Raglan Barracks, Plymouth, and when outfits can be procured for them from their respective depots they are to be sent on sick furlough.

The Lady Georgiana Curzon has received a cable from Lady Roberts, stating that her ladyship had opened the Imperial Yeomanry Branch Hospital at Pretoria, and concluding with the words "everything is perfect." Surgeon-Major C. R. Kilkelly of the Grenadier Guards, principal medical officer to the hospital, cables that a convoy of 100 sick and wounded was hourly expected to arrive at the hospital, and that everything was in excellent order for their reception. Major Stonham, R.A.M.C., of the Imperial Yeomanry Field Hospital, reports that he had up to July 20th treated 312 cases.

Major Stonham, with the field hospital and Imperial Yeomanry bearer company under command of Major Hale, D.S.O., R.A.M.C., is at present engaged on active service with Colonel Mahon's force. Colonel Sloggett, commandant and principal medical officer of the Imperial Yeomanry Base Hospital at Deelfontein, reports that there are amongst other patients in this hospital (numbering over 1000) 337 of the Imperial Yeomanry, seven of whom are officers.

The following have been discharged from hospital for duty:—Lieutenant H. P. W. Barrow, R.A.M.C., Major Kirkpatrick, R.A.M.C., Captain Watson, R.A.M.C., Lieutenant Faulkner, R.A.M.C., Lieutenant R. D. Jephson, R.A.M.C., and Civil Surgeons Betts, Watson, Steele, Ekins, and Bayley.

Among those who arrived in England last week in the transport *Canada* from South Africa was Mr. Raymond Johnson who has for six months been serving with the Imperial Yeomanry Hospital.

The Queen paid a visit to the convalescent homes at East Cowes on August 21st and also on August 22nd. The men being treated there visited Osborne and were conducted over the palace. Subsequently they were entertained to tea in the servants' hall.

THE CRISIS IN CHINA.

The American hospital ship *Maine*, entirely equipped and maintained by a committee of American ladies in London, has now been sent to China after her six months' work in South Africa. Her expenses on this new mission will be greater than hitherto, but it is hoped that she will be as generously supported. The *Maine* will receive American, English, and other sick and wounded. The following subscriptions have been received since August 3rd, 1900:—Baron Alphonse de Rothschild, £100; Mr. M. P. Grace, £50; Miss Elena M. Grace, £50; Mrs. Adair (two months' subscription). £40; collected on White Star s.s. *Cymric*. £30 13*s.* 6*d.*; Mr. Jules Porges, £26 5*s.*; Mr. Ferdinand Bischoffsheim, £10; and Lady Stanley Clarke, £2. Subscriptions may be sent to Mrs. Adair at the headquarters, 30, Curzon-street; Mrs. Arthur Paget, 35, Belgrave-square; Mrs. Bradley Martin, 4, Chesterfield-gardens; and to the honorary treasurer, Mrs. Ronalds, 7, Cadogan-place, S.W.

VOLUNTEER AMBULANCE SCHOOL OF INSTRUCTION.

The autumn classes for the training of stretcher bearers will commence on October 4th, 1900, at 7.40 P.M., at the headquarters of the London Rifle Brigade, 130, Bunhill-row, E.C., by permission of Lieutenant-Colonel E. Matthey, commanding the London Rifle Brigade. There will be the usual class for new members and also a class for passed members under the charge of Surgeon-Captain E. M. Callender, Prince of Wales's Own, 12th Middlesex (Civil Service) V.R., and Surgeon-Lieutenant G. A. Cohen, 1st Volunteer Battalion Middlesex Regiment. Officers, non-commissioned officers, and men will be admitted to the classes on presentation of application forms properly endorsed by their adjutant or captain. Application forms can be obtained from the honorary secretaries, from Ambulance-Sergeant H. J. Bussell, 13, Gower-street, W.C., and from Ambulance-Corporal E. G. Davies, 1, Lombard-court, E.C., or at the office of the school, 8, Portman-street, W.

THE RELIEF OF KUMASI.

Public attention has been so exclusively drawn to the stirring events which have been taking place in China and South Africa that those connected with Ashanti have failed to attract the attention which they deserve, for the services of our officers in that unhealthy climate have been heroic. Major Morris, for example, although he was badly wounded, displayed great courage and fortitude and did some brilliant work with his small native force under the most trying circumstances. In addition to an insufficient amount of food-supply and ammunition the force suffered a good deal from sickness (mainly fever and dysentery) as the result of their long march in the rainy season through the forest jungle and they had too a good deal of fighting on the way. Major Morris's small force of Haussas had lost one officer and 80 men on their arrival at Cape Coast Castle.

DEATHS IN THE SERVICES.

Deputy Inspector-General John Burton St. Croix Crosse on August 21st at Leigh House, Surbiton, aged 85 years. He entered the Army in 1840 and served with the 11th Hussars during the Eastern campaign of 1854-55 (medal with four clasps, Turkish medal, and the Legion of Honour).

THE SOUTH AFRICAN ROYAL COMMISSION.

The Commissioners have resumed work at Cape Town, where several witnesses have been examined. Woodstock and Greenpoint have been visited.

THE

BRITISH MEDICAL ASSOCIATION.

MEETING AT IPSWICH.

THE SECTIONS.

SURGERY.

THURSDAY, AUGUST 2ND.

Lateral Curvature, Knock-knee, and Flat-foot.

IN the absence of Mr. ARBUTHNOT LANE (London) this discussion was opened by Mr. JACKSON CLARKE (London). After defining the meaning of the terms the scope within which the discussion should be limited was then suggested. It was only when these three deformities were considered as *habitual pressure deformities* that they could profitably be compared. Thus cases of lateral curvature due to paralysis or consecutive to empyema, &c., and instances of knock-knee or of flat-foot due to severe arthritis, need not be considered save for purposes of comparison. By a habitual pressure deformity was meant a deviation from the normal form caused by the force of gravity acting on the ligaments and bones owing to the preponderating use of one to the exclusion of other attitudes. In certain circumstances a *habitual posture* was gradually converted into a *deformity*. As applied to the subjects under discussion Mr. Clarke observed that the majority of cases of lateral curvature arose from faulty attitudes assumed by school-children when sitting at a desk, especially during writing. Knock-knee and flat-foot arose in what Annandale had termed the "attitude of rest," as seen, for instance, in the apprentice who stood with the feet everted and somewhat widely separated. The main point for discussion might be formulated thus: "To what extent do pathological processes enter into the causation of pressure deformities?" The danger in giving names was that they might be misinterpreted. The term "pressure deformity" originated in Germany with Roser and Volkmann and Mr. Clarke thought it was as good a one as could be found; at the same time he strongly believed that in the vast majority of cases of these deformities there was something more than the force of gravity and a habitual attitude at work. There was, he believed, a pathological predisposing cause to be found in nearly every case at the time of the development of the deformity. Healthy children did not long remain in any one posture. According to Danish observers about 1½ per cent. of school-children became affected with lateral curvature. According to German observers about 90 per cent. of school children assumed abnormal spinal postures during writing. Why did not more than a fraction of those who assumed faulty attitudes become deformed? Mr. Clarke had no hesitation in expressing his belief that it was only those who suffered from some abnormal softness of ligament and bone who became affected by these pressure deformities. Slight rickets and an inherited tendency to rheumatoid arthritis were the two chief causes of this diminished resisting-power of the skeleton and ligaments. These same two affections were, he believed, the chief causes of naso-pharyngeal adenoid vegetations which played no small part in the production of deformities of the chest. If this contention were correct the physician could do much towards the prevention of pressure deformities by insisting on a rational diet for children. If all school-children could have an abundance of fresh—i.e., unboiled and unsterilised—milk cases of deformity of this class would be diminished and, he believed, almost abolished. Failing a safe milk-supply raw eggs or raw meat might be substituted. In comparison with this broad prophylactic or medical aspect of the matter the strictly surgical aspect was unimportant; to the individual patients, however, proper surgical treatment was of the highest moment. Mr. Clarke then reviewed muscular training, instrumental, and operative treatment. Seeing that the majority of the patients who came for treatment during the course of development of the deformity required supervision on an average for a period of two years he found that routine courses of special gymnastic treatment of two or three months' duration were less effectual than simple exercises devised for each patient and practised at home under the supervision of the patient's medical adviser. Of instruments some form of the rigid splint was of most service: in flat-foot an outside leg-iron, in knock-knee an outside splint or iron, and in lateral curvature a posterior support with lateral plates. At some children's hospitals it was still recommended that for these deformities the patients should be taken "off their feet" for a year or more. Save for rare complications this was not necessary. All these conditions could be treated successfully on the ambulant plan and thus no interference with the course of education was involved. There was room for much improvement in this department, an improvement that, in Mr. Clarke's opinion, could only be brought about by arranging for a more systematic scheme of teaching orthopædic surgery in the medical schools.

FRIDAY, AUGUST 3RD.

The Use of Roentgen Rays in Surgery.

Mr. J. MACKENZIE DAVIDSON (London) gave an account of the recent progress in this direction. He showed that a single skiagram was often very misleading, as the relative position of parts might be completely misrepresented. He now took two photographs with the Crookes's tube in different positions, about two and a half inches apart. These two pictures differed slightly from one another and they were combined by a Wheatstone's stereoscope so that one mental image was obtained in which the relative depths of objects could be distinguished. He had also been able to adapt the stereoscopic method to the fluorescent screen by employing two Crookes's tubes, which were alternately eclipsed, and the eyes of the observer were correspondingly shut out from a view of the screen. (A demonstration of this important step in stereoscopic radiography was afterwards given by Mr. Davidson.)

The Open Incision for Club-foot, its Indications and Abuses.

Dr. A. M. PHELPS (New York) read a paper on this subject. In 1878 Dr. Phelps performed his first operation by open incision on a relapsed club-foot and since that date he had operated on 1650 cases. In the last 700 cases he had not performed a single osteotomy and the mortality of the whole 1650 had been *nil*. Up to the age of four months it was unnecessary to do more than attempt to straighten the foot by the employment of the surgeon's hands and the use of adhesive strapping, but if the fourth month had passed and the foot refused to straighten then the surgeon should perform subcutaneous tenotomy, dividing first those tendons which were most tense. The tendo Achillis generally first needed division. It was only after tenotomy had failed that any open operation should be considered. The soft parts were really responsible for all forms of congenital talipes and the complete division of any restricting band would nearly always suffice for the straightening of the foot. The incision was made on the inner side of the foot from just in front of the internal malleolus to the neck of the astragalus. The foot was then wrenched into an over-corrected position and fixed in that position. The most important structure to divide was the anterior limb of the deltoid ligament. In most cases the wound filled up with blood-clot which organised. If, however, as occasionally happened, it were found impossible to get the foot straight an osteotomy might be done, the simplest being division of the neck of the astragalus, or, if that were not sufficient, a wedge-shaped piece of the os calcis might be removed. Very rarely indeed it might be necessary to amputate and then Pirogoff's operation should be performed. The results of the open incision could not be surpassed by any other method of treatment and much time was saved.

Mr. JACKSON CLARKE (London) said that he would much like to see the present condition of Dr. Phelps's earlier cases. He considered that treatment should guide the growth of the foot, and by manipulation with one or two tenotomies it was possible to make any congenital club-foot into a perfect foot in two or three years.

Mr. A. H. TUBBY (London) did not consider Dr. Phelps's operation a good surgical procedure. The scar filling the gap on the inner side of the foot must contract and cause a return of the deformity which would then be irremediable. The results of the mechanical treatment were, in his opinion, better than those obtained by any other method.

Mr. NOBLE SMITH (London) thought that if all cases which could be treated by manipulation and tenotomy were excluded none would be left for the more severe operations. He considered that Dr. Phelps's operation would leave a very inelastic foot.

Mr. CHISHOLM WILLIAMS (London) had never seen a case

in which he had considered it advisable to recommend any such operation as that described by Dr. Phelps.

Dr. PHELPS, in reply, expressed his pleasure in being criticised, but he thought that the criticisms were founded on a misunderstanding. Experience showed that the scar formed did not contract, and cases had been followed up for 12, 15, and, in one case, even for 20 years.

The Substitution, when Practicable, of Subastragalar for Syme's Amputation.

Mr. JONATHAN HUTCHINSON, jun. (London), read a paper on this subject. He acknowledged that the results of Syme's amputation were sometimes very good and he had seen one case in which the stump had remained in perfect condition for 22 years. For several reasons, however, union by first intention was somewhat rare in Syme's amputation and in many cases some months elapsed before the stump was healed. Mr. Hutchinson had performed the subastragalar amputation six times, five times according to Farabœuf's method which was the best. The advantages of the subastragalar amputation over that of Syme were: (1) that the stump was some two inches longer; (2) that it gave a broader base of support; (3) that the elasticity due to the ankle movements was a marked advantage in walking; (4) that the pad of soft tissue at the end of the stump was much thicker; (5) that the arterial supply of the flap was better; and (6) that an artificial leg could be better fitted to the stump. Syme's amputation could, however, sometimes be done when the tissues were quite insufficient for the subastragalar method. For the subastragalar amputation the flap could not be too thick and it was remarkable how much movement was retained at the ankle. Sometimes it was advisable when the flap was scanty to remove the head of the astragalus.

Mr. WALTER G. SPENCER (London) agreed that the subastragalar operation should be better known and he was specially inclined to think that the operation would usefully replace Chopart's amputation.

Observations upon Injuries to the Internal Lateral Ligament and to the Internal Semilunar Cartilage of the Knee-joint.

Mr. JOSEPH GRIFFITHS (Cambridge) in a paper on this subject pointed out that the internal lateral ligament only prevented the giving way of the knee-joint during semiflexion. The tearing of this ligament was one of the chief causes of a "weak knee" after an injury, such as a sprain. He had devised an apparatus which prevented the separation of the femur and tibia on the inner side, and so took the place of the torn internal lateral ligament. It consisted of a band above and below the knee connected by a metal band at the back which allowed flexion. Its effect in suitable cases was frequently very marked and immediate. The internal semilunar cartilage was fixed in position chiefly by what might be called its suspensory ligament, which fastened it to the internal lateral ligament of the knee-joint. When either of these ligaments was torn the two bones might separate and the cartilage might be displaced outwards. The treatment of this condition was by an apparatus very similar to the other and the results were equally satisfactory.

Mr. NOBLE SMITH expressed his approval of the apparatus exhibited.

Dr. TURNER thought that rupture of the coronary ligament had much to do with displacement of the internal semilunar fibro-cartilage, which was liable to be rotated outwards when the knee was flexed.

Mr. JOSEPH GRIFFITHS could not agree that rupture of the coronary ligament only would allow of displacement of the cartilage.

Three Cases in which the Superior Cervical Ganglia were Excised, with Remarks on the Operation.

Mr. F. F. BURGHARD (London) communicated notes on these cases. The first case was one of chronic glaucoma in a woman. When the patient recovered from the anæsthetic she complained of intense pain in the head; at times it was excruciating, requiring morphia. Gradually the pain decreased but the glaucoma was in no way relieved. The best incision was in front of the sterno-mastoid and then the internal jugular vein was drawn inwards and the sympathetic was exposed. The vagus was usually not seen at all. The double operation took half an hour. Jonnesco of Bucharest performed the operation eight times for glaucoma, in all cases with much improvement of the symptoms. Mr. Burghard's second case was one in which a recurrent epitheliomatous gland caused pain in the neck and arm. The gland was excised and was found to involve the ganglion. The pain was at once removed. In the third case the patient, a man 44 years of age, had a swelling in the neck which was thought to be a gland but when it was removed it was found to be a false diffuse neuroma of the cervical sympathetic. The constant symptoms which followed removal of the superior cervical ganglion were: (1) ptosis; (2) severe pain in the head with flushing of the face; and (3) contraction of the pupil. There was neither alteration of intra-ocular tension nor change in the pulse.

Mr. WALTER G. SPENCER remarked that Jonnesco's results had been received with some hesitation. He was inclined to think that the operation might be usefully employed for some cases of severe persistent pain in the head and neck.

OBSTETRICS AND GYNÆCOLOGY.

FRIDAY, AUGUST 3RD.

Post-partum Hæmorrhage: its Prevention and Treatment.

In the unavoidable absence of Dr. W. R. DAKIN the discussion on this subject was opened by Professor J. W. BYERS (Belfast). He defined post-partum hæmorrhage as excessive hæmorrhage after labour, depending on certain pathological conditions. The amount of blood necessary to mark the case as one of post-partum hæmorrhage could not be arbitrarily defined; the case must be judged by the effect of the bleeding on the general condition of the patient and by the local conditions found. The pathological conditions leading to hæmorrhage were—(1) abnormal state of the blood and atony of the vessels; and (2) lacerations of the genital tract. The indications of predisposition to hæmorrhage were as follows: (*a*) Conditions during pregnancy: (1) history of hæmorrhage in previous labours; this was of value in two sets of cases—viz., among the poor where pregnancies succeeded each other rapidly, and among the wealthier classes where there had been over-feeding or over-drinking; (2) over-distension by hydramnion, twins, or a tumour; (3) albuminuria; and (4) extreme mental depression, as, for instance, when delivery followed soon after the death of the husband. (*b*) Conditions found during labour, such as a persistently quick pulse or a type of pains characterised by sharpness and short duration with long intervals. With regard to the influence of chloroform some obstetricians seemed inclined to regard it as predisposing to hæmorrhage, but Professor Byers thought that this was not so, at least when chloroform was given only with the pains. And although when given in full surgical quantity, as in cases of forceps, version, &c., post-partum hæmorrhage might follow, the result here was probably due rather to too rapid delivery than to the chloroform. Passing on to the question of prophylaxis Professor Byers observed that the treatment of post-partum hæmorrhage consisted mainly in its prevention, and for this purpose two points especially were to be borne in mind—viz., first, the importance of not delivering in the absence of a pain, and secondly, the necessity for careful management of the third stage. As to the first point, the case might be one of secondary inertia and the temptation to use forceps might be great, but the proper treatment was to give opium, and after a rest the pains would come on again. Or, again, they might have to do with placenta prævia, where the proper treatment was bimanual version; but this should not be followed by immediate extraction, for this would bring about precisely the two conditions he had first mentioned as leading to hæmorrhage. With regard to the management of the third stage he believed that there was some meddlesome midwifery done. The separation of the placenta should be allowed to be effected naturally, and it was bad practice to squeeze out the placenta before it had become naturally separated. Twenty minutes or more might be necessary for this purpose. Special measures of precaution when hæmorrhage was to be feared consisted in the adoption of hygienic measures during pregnancy; and chloride of calcium might be given for a short time before labour. The modes of treatment on which chief reliance was to be placed were as follows: in the first place external uterine massage; then the injection of hot salt solution. For injection it was important not to use mercurial solutions, since the vessels were open and absorption might occur very readily. The introduction of the hand into the uterus should not be resorted to unless one felt sure

that some portion of placenta or membrane had been left behind. The use of perchloride of iron was, he thought, rightly going out; it was risky and was not always of use. If these measures failed the uterus should be plugged and it should be done thoroughly. Gauze ready sterilised in tins could be obtained for this purpose. If this failed the gauze should be withdrawn, the uterus washed out, and the packing replaced; and if bleeding still went on they had to do with a very serious state of things. In one case, under these circumstances, he adopted the plan of taking hold of the cervix and drawing down the uterus, the result being satisfactory. Wounds of the parturient canal were important, as they might lead to errors of diagnosis. The uterus might then be firmly contracted while bleeding went on—a condition described in the old text-books as post-partum hæmorrhage with contracted uterus. They could be sure that with a firmly contracted uterus the bleeding was not from the placental site and they should then look for injuries. The after-treatment was the treatment of anæmia. Quiet was necessary. Saline solution was of the greatest value and intravenous injection was best, but was often very difficult to carry out single-handed, and nearly as good results followed injection into the connective tissue under the breast. This was better than injection into the rectum.

Dr. ROBERT BOXALL (London) considered that 20 ounces of blood lost constituted a pathological quantity and on this estimate the cases of post-partum hæmorrhage at the General Lying-in Hospital amounted to about 10 per cent. He had paid some attention to the subject of the collarette placenta as described by Auvard and it had seemed to him that this might have a relation to post-partum hæmorrhage. On further inquiry he found that out of 22 cases of post-partum hæmorrhage the collarette placenta was found in no fewer than 15 cases. The causation of hæmorrhage under these circumstances was not difficult to understand, because the turned-up placental edge which characterised the "collarette" placenta was very soft and friable, tearing very readily.

After some remarks by Dr. JOHN HADDON (Hawick) Mr. E. STANMORE BISHOP (Manchester) advocated greater simplification of the subject of post-partum hæmorrhage; such rare or theoretical causes as hæmophilia or the influence of the ganglion cervicale uteri should be eliminated from their teaching, and the really practical aspects of the matter dwelt upon. The most frequent cause of hæmorrhage was a tired condition of the uterine muscle, which was apt to be brought about by prolonged labour, chloroform, alcoholism, and mental depression. Venous hæmorrhage could be arrested simply by raising the foot of the bed.

Mrs. SCHARLIEB (London) mentioned that in India and other hot climates post-partum hæmorrhage was common, especially in Englishwomen exhausted by the climate, and that quinine given during labour strengthened the uterine contraction, accelerated the labour, and was also a prophylactic against hæmorrhage.

Dr. JOHN CAMPBELL (Belfast) said that the duty before them in a case of hæmorrhage was at once to get as near the source of bleeding as possible. To do this they should seize the anterior lip of the cervix and draw it well down into the vulva with a strong volsellum. This would stop or materially diminish the hæmorrhage. If the bleeding were intra-uterine they might then wash out the cavity with hot sterilised salt solution, using a flushing curetté, which removed thoroughly all clots and placental débris which might have remained behind. After this the gauze-packing might be applied.

Dr. C. E. PURSLOW (Birmingham) differed from Professor Byers in that he placed plugging of the uterine cavity before the introduction of the hand as a method of treatment. He thought the latter plan should be used only as a last resource.

Dr. W. J. SMYLY (Dublin) said that Dr. Haddon had properly called attention to two striking conditions; in the first of these the uterus might be relaxed and yet no hæmorrhage take place, and if violent measures were adopted to make such a uterus contract the effect would be like flogging a tired horse, and it was better to leave it alone. This condition was sometimes met with after chloroform had been given. The second condition was that in which the uterus was firmly contracted and yet hæmorrhage was going on. Such bleeding could not come from the placental site and it was necessary to look carefully for its source. If it were a case in which forceps were applied before full dilatation of the cervix, or in which early rupture of the membranes had taken place, then the hæmorrhage was very likely to be from a torn cervix. Otherwise it might be from the vulva or the vagina. An exact diagnosis was of the utmost importance, for to go through the usual programme of uterine massage, hot douche, packing, &c., and other means of inducing contraction while bleeding was going on from other causes might lead to much loss of valuable time. With regard to prophylaxis he thought that this should go back much further than the third stage of labour; not only the tired uterus but also the diseased uterus would bleed—for example, the hæmorrhage might be due to an antecedent metritis or endometritis. Consequently from one point of view post-partum hæmorrhage in one labour might be looked upon as the punishment for neglect of asepsis in a previous labour.

Dr. HENRY BRIGGS (Liverpool) said that he had shown some time ago before the North of England Obstetrical and Gynæcological Society that drawing down the uterus would check hæmorrhage; he employed the plan of seizing the cervix with volsella forceps. He believed that Dr. Galabin had advised iodoform gauze packing before it was suggested by Dührssen and had remarked that enough gauze might be stuffed into the uterus to supply material for two ball dresses. If the uterus were drawn down in the way he had suggested while packing much less gauze would be required.

The PRESIDENT (Dr. W. S. A. GRIFFITH) endorsed Mr. Stanmore Bishop's view that the whole question ought to be simplified and believed that much had been done in this direction by the introduction of heat for the checking of hæmorrhage. The first thing was to aim at securing an empty and contracted uterus, and this was not always an easy matter. The only way to be sure about it was by introducing the hand into the uterus, and this was not to be undertaken lightly. It was to be remembered that clots as well as placental fragments might be keeping the uterus from proper contraction. He wished to emphasise the necessity of managing the third stage of labour with the patient lying on her back; this not only made the control of the uterus much easier but greatly facilitated the detection and repair of lacerations. The latter were most important; he had seen a case in which death resulted from the laceration of the vestibule during the application of the forceps. He felt sure that chloroform, when given deeply, did interfere with the power, duration, and frequency of uterine contractions. This effect was exactly the opposite of that produced by ergot; and he had for some time been in the habit of giving ergot in cases in which he was about to administer chloroform. The administration of ergot before delivery was, of course, contrary to the usual rules given in text-books, but he could testify that when used with discretion it answered very well. It must be remembered that there were times when the administration of opium, allowing the patient to sleep for several hours, would result in a stillborn child. He did not agree with a previous speaker that an approximate estimate of the heat of a douche was sufficient. On the contrary, the temperature should be regulated with the thermometer, the best temperature being from 117° to 120° F. The use of this plan would make gauze-packing very seldom necessary; he had only had to pack once since using the douche as described. If packing were required and gauze were not at hand other things would answer very well; for instance, strips of clean linen boiled and then soaked in weak perchloride of iron, if at hand, or in whisky or some other spirit. The effect of passing such strips right up to the fundus of the uterus was nearly always immediate.

After a brief reply by Professor BYERS two papers were read, one by Mrs. STANLEY BOYD (London) on the Conservative Surgery of the Tubes and Ovaries; and the other by Dr. C. E. PURSLOW, being an Account of a Case of Complete Inversion of the Uterus of Three Years' Duration.

The proceedings of the section then terminated.

STATE MEDICINE.

THURSDAY, AUGUST 2ND.

The Hygienic Aspect of the Use of Water Gas.

Mr. J. C. MCWALTER (Dublin) read a paper on the above subject. He considered that great dangers were attached to the increasing use of water gas by many gas companies. The risk he attributed not only to leakage but also to actual osmosis through the walls of the pipe. He traced an increased mortality of deaths from carbon monoxide poisoning in towns where water gas was used. The saturation of

the ground air with carbon monoxide he thought was a cause of endemicity of such diseases as enteric fever and cerebro-spinal meningitis.

The paper was discussed by Dr. H. PECK (Chesterfield), Dr. J. C. THRESH (Chelmsford), and others.

FRIDAY, AUGUST 3RD.

Should Municipalities provide Common Lodging-houses and Workmen's Dwellings?

A discussion on this subject was opened by Dr. H. COOPER PATTIN, medical officer of health of Norwich. He said: "I apprehend that the reply of those of us who are medical officers of health will be in the affirmative with varying reservations. My own reply is a distinct affirmative with, however, definite limitations. About what we mean by common lodging-houses there can be little doubt, but I think what most of us have in our minds when we speak of workmen's dwellings are the wants of poor men rather than artisans, at any rate, skilled artisans; and those of us who are medical officers of health will inevitably look at the problem from the standpoint of officials who are anxious to have what I may call 'slummers' provided with healthy and cheap habitations. I think we mostly find that the average workman, certainly the average skilled workman, can and does provide himself with the home he wishes. So if we are to keep to our definition let us agree that we are considering the question of municipalities providing dwellings for workmen below the rank of skilled artisans and poor men and women generally, and in particular those of our brethren to whom we may give the designation of 'slummers.' The general propositions in favour of municipalities providing common lodging-houses and poor men's dwellings are something like these. That anything which damages the health of the community included in a municipality injures that municipality in its most valuable asset—vigorous humanity. That inefficiently equipped and managed common lodging-houses and badly situated tenements and dwellings do this. That the credit of the municipality being greater than that of an individual it can erect and carry on common lodging-houses and provide poor men's dwellings more cheaply than private persons trading for profit are likely to do, or as experience teaches us can do. That the direct control which it obtains over common lodging-houses enables a municipality more easily to check the importation and the propagation of various communicable diseases, and that by securing to its people more air space and healthier surroundings than these find in the slums, &c., it is laying up a richer harvest of healthy dwellers for the succeeding generation as well as actually diminishing ill-health and disease in the existing community. The general objections to all schemes may be summarised thus: that the carrying of them out commits the municipality to trading; that it interferes very seriously with private enterprise; that it will add to the already enormous amount of municipal debt; that it imposes an improper amount of strain upon members of municipalities in the matter of management; and that the further progress of such socialism threatens municipalities with becoming in time, not the servants, but the slaves of their tenants. Well, then, I say municipalities should provide common lodging-houses upon precisely the same principle which leads the State to insist that every child shall have a certain amount of education or every starving person a certain amount of food and shelter—the principle of common interest dictating a minimum standard below which the education, the sustenance, or in the special case before us the lodging of the poorest members of the community shall not be suffered to fall. Pray do not misunderstand me. I by no means believe that it is the duty, that it is wise, or even prudent for the municipality to provide all the common lodging-house accommodation which may be needed by its permanent and temporary population. What I do feel is that it is desirable, wise, and prudent for a municipality to say: 'We will not, out of regard alike for the healthiness of our city and for the welfare of our common humanity, suffer any persons to be lodged in a common lodging-house within our boundaries below a certain minimum standard of healthiness and comfort, and to insure this we will provide such minimum ourselves and leave it for private enterprise to attract custom by offering a higher standard of comfort, &c., for the same money, or, for those who can pay it, for a higher sum of money.' Of course, I know that it may be urged that by owning all common lodging-houses a municipality can simplify administrative control and inspection, but I am at present satisfied that the principle I urge is the soundest basis for action—viz., the establishment by the municipality in its own common lodging-houses of the minimum standard of accommodation, &c., it will tolerate; just as although a starving man is now fed and sheltered by the community in a workhouse one by no means desires to see every other place where food and shelter can be obtained in the direct possession of the State. There can be little doubt, too, that the provision of all the lodging-house accommodation needed in any locality of the municipality will favour the tendency to crowd large numbers upon a given site, if only to reduce administrative expenses—a tendency I regard with disapproval. Moreover, it is hard upon the wayfarer to be compelled to tramp perhaps right across a town before he can reach a common lodging-house in which he can find accommodation. My personal attitude of approval of the provision of dwellings for poor people by municipalities is conditioned by the limitation I apply to the provision of common lodging-houses—viz., that the municipality is entitled to say, and wise to say, "We will not permit any members of our communal family to be housed under conditions below a certain standard in healthiness, which minimum standard we will ourselves supply, leaving private enterprise to provide greater conveniences, &c., for those who desire to live on a scale exceeding our minimum," just as we now say that it is to the public advantage that every child shall receive a certain minimum amount of education, which minimum we provide, but leave the way open for the attainment of any desired maximum through private expenditure. I feel tolerably sure that the influence of what I may term 'standardising' municipal common lodging-houses and poor men's dwellings will be of even more indirect than direct benefit to the affected municipality—they will act as perpetual spurs to private competition, which to prove remunerative must offer accommodation more attractive."

Dr. A. HILL (Birmingham) said that the common lodging-house was one of the least difficult kinds of building to provide. Men who had only 18*s.* per week could not pay a rent of 5*s.* or 6*s.*; what was most wanted in his opinion were rooms at 1*s.* per week. Unfortunately, however, houses with such rooms could not be furnished by the municipalities except at a loss. He thought that could be done only by throwing the cost upon the ratepayers. Lodging-houses, on the other hand, could be directed by private enterprise. It was, therefore, only necessary for municipalities to supply lodging-houses where private enterprise failed. At present in Birmingham they were trying the dual system, one house above the other, let at a weekly rent of 4*s.* 6*d.* One of the great difficulties to the supply of houses for the very poor was the dirty and destructive habits of that class.

Dr. E. P. MANBY (Liverpool) gave some account of what had been done in Liverpool for the housing of the working classes.

Dr. WALTER SMITH (London) was in favour of the municipality providing houses for the poorer working classes, but there were obstacles in the way of carrying it out owing to the difficulty of obtaining land and to the complication of administering the Act. He brought forward a motion to the effect that Government should be petitioned to amend the Act with a view to its simplification and that the time for repayment of loans be extended for buildings to 60 years, the land being considered as a permanent asset.

Dr. J. S. TEW (Tonbridge) observed that at the Conference on the Housing of the Working Classes lately held in London the plans of the Liverpool cheap dwellings, designed by Mr. P. Boulnois, were shown, and he gathered that the 3½ or 4 per cent. paid referred to the total revenue derived from the rents, less repairs and management, but did not represent profit. It appeared quite impossible to provide municipal dwellings at anything like 1*s.* per room per week. The municipal dwellings erected in London and other large centres cost an amount requiring a weekly rent of from 2*s.* to 3*s.* a room to pay their way. The three-room and four-room dwellings erected by the Richmond Corporation and letting at a rental of from 4*s.* 6*d.* to 5*s.* 6*d.* respectively were comfortable and healthy and self-supporting. These were built as double cottages in flats with a small garden for each tenant at the rear and were well worth a visit by anyone interested in the question. All details were given in Alderman Thompson's excellent description of these dwellings.

Dr. COOPER PATTIN, in reply, said that in dealing with cottages in rural districts it was necessary to simplify legislation. He agreed with Dr. Hill and the President that

the position that a loss would be incurred by the erection of proper houses for the poor must be faced.

The following was the motion which Dr. WALTER SMITH brought forward. It was seconded by Dr. PECK and carried *nem. con.* :—

The public must be taught that money would have to be sunk as an investment which would not make an immediate money return.

Food Preservatives and Colouring Matters in Food, with Reference also to Foreign Law and Conditions.

Dr. A. S. GRÜNBAUM (Liverpool) then read a paper upon this subject. The enormous extent, he said, to which food preservatives were now being used, the abuses to which they were put, and the injuries which they might cause, made stringent and definite legislation on the subject necessary. At present the law was too vague and narrow, and trade interests were too selfish and magistrates for the most part were too ignorant for much progress in this direction. Meanwhile continental nations were going rapidly ahead and they would, if they were not careful, soon lose their front place in matters relating to public health and state medicine. The addition of preservatives, regarded independently of their action, might be classified as follows. They might be added (1) either (*a*) *bonâ fide* or (*b*) with fraudulent intent; or (2) with a view to either (*a*) permanent (e.g., ham) or (*b*) temporary (e.g., milk) preservation. The addition might be considered *bonâ fide* if (*a*) the purchaser was made aware of the addition, and (*b*) if the article was well known to usually contain a preservative, always provided that the preservative had no injurious action. The use was fraudulent if (*a*) the addition was concealed, (*b*) if used to make a stale article appear fresh, and (*c*) if the preservative was injurious. Consequently preservatives added to articles intended for consumption when fresh were generally added with fraudulent intent, since they concealed the inferior quality of the article to the prejudice of the purchaser. Milk might be taken as the most important type of food under this heading. Dr. Grünbaum thought that in a strictly legal sense any addition of preservatives to milk was illegal, because any customer if offered his choice of fresh milk or of milk apparently fresh to which the preservative had been added would undoubtedly choose the former; that would be the quality demanded. The saving clause in the statute did not cover milk, since it was not produced nor did it require preparation as an article of commerce. In the case of cream the defence had sometimes relied upon the fact that the addition of the preservative had been noted upon the bottle, but he was not aware of any case in which the milk-dealer had informed his customers of the presence of a preservative. Continental opinion seemed pretty unanimous regarding the inadvisability of permitting the addition of preservatives to milk. Although not specifically prohibited by the Foods Act the German Ministry in a circular letter as far back as 1884 advised the local authorities to make by-laws to this effect, and repeated the advice in another letter last year. In Hamburg the local law had been so effectual that in milks examined with that object the percentage of those containing boric acid fell from 23 in 1895 to 4·9 in 1897. A similar regulation held good in Vienna. It did not, therefore, appear that such restrictions caused difficulty in the adequate supply of milk to large towns. He wished to emphasise that point because the opponents of preservatives were usually considered to be mere theorists. In regard to wine the German law was very particular and there was a statutory prohibition against the addition of certain things to wine or to drinks like wine. Amongst these were salicylic acid, glycerine, and aniline dyes, also the addition of saccharin to sparkling or fruit wines. It would be well if precautions were instituted in this country against the addition of salicylic acid and dyes to the so-called fruit wines. A favourite preservative on the continent was sodium sulphite. It was used principally for giving a fresh appearance to minced meat. There had been numerous convictions against its use, sometimes with imprisonment. There was reason to believe that the sulphites were used also in this country, although for a different purpose, but Dr. Grünbaum was not aware that any cases had, although such cases certainly should be, taken into court. In examining into the question of preservatives and colouring matters he had not, unfortunately, been able to find evidence of a high standard of commercial morality. He would take two instances from the price lists of firms engaged in supplying confectioners and brewers. Concerning saccharin there was the following paragraph: "As a cure for 'sick' beers.—Even when such a dubious lot of beer already begins to show signs of incipient 'taint' there may yet be time to save it by quick action in introducing, as may be needed, from one to two ounces of saccharin per 500 gallons and thereby arresting the souring process and at once making the beer drinkable and marketable." Even apart from its preservative qualities the substitution of saccharin for sugar was undesirable as diminishing the nutritive value of the food. Another list had amongst its "brewers' materials" in the largest letters potassium metasulphite, directing one ounce per barrel to be used, with the remark that "it is a perfect antiseptic in crystals, &c." This quantity was equivalent to 1·5 grains per pint. On another page was a list of brilliant aniline colours for boiled sugars, fondants, lozenges, jujubes, &c. The law was at present somewhat too lenient since it permitted imprisonment as punishment only with the second offence and if the fine amounted to £50. If it could be relied upon that the quantity and quality of a preservative would always be intimated to the purchaser it might be possible to permit the use of preservatives within certain limits, but Dr. Grünbaum could see no hope of inducing any trade at large to make such intimation. Occasionally and exceptionally instances were met with where the addition of a preservative was noted on the label; but having regard to the inherent selfish characteristics of commerce the regulations should be definite and the punishment severe. In most articles of food the addition of preservatives should be uncompromisingly forbidden and the only class in which it seemed in any way admissible was that of preserved meat of various kinds—e.g., ham, bacon, &c.—but not potted meat. The chief reasons for this hostile attitude to preservatives were the following. 1. The addition of a small quantity of a preservative like borax did not hinder the growth of micro-organisms as a whole, although it did repress the putrefactive ones and interfered with the digestive functions. As Professor Halliburton had shown, the addition of even a small quantity of borax (0·05 per cent.) inhibited the action of rennet ferment. Dr. Grünbaum confirmed this experiment and could add that the reason was to be found in the precipitation of the calcium by the borax. It exerted practically no antiseptic action. [A photograph showing this was passed round.] Adding calcium to make up for that precipitated only made matters worse from a bacterial point of view. 2. The addition of a large quantity sufficient to inhibit all growths was injurious to the cells of the digestive tract. These cells were known to be more sensitive than bacteria. Milk treated with 0·1 per cent. of formalin formed larger clumps in the stomach, which thereafter were digested with more difficulty than those formed from pure milk. 3. The same end could be attained by harmless means. He considered the occurrence of putrefaction to be a good indicator of when other bacteria were assuming dangerous proportions, and to repress their growth in an article like milk was like sitting on the safety-valve of a steam-engine. If milk had once gone bad the dealer could mix it with that which was new and sweet; if a preservative were added and it remained apparently good, no doubt yesterday's milk or that of the day before would be added to to-day's and indefinitely, and no legal prohibition without inordinate expenditure on inspection could control such a procedure. The experience already gained in surgery should be put to use. Asepsis now ruled instead of antisepsis and what was required was aseptic, not antiseptic, food. Two physical means were at command for this purpose—heat and cold. The former was chiefly applicable to articles not intended for fresh consumption, the latter chiefly to more perishable foods, like milk and cream. That they were effectual was well known; certainly they were more effectual than antiseptics at ordinary temperatures. Cooling and keeping cool would keep the number of bacteria in milk down to that with which it started. Colouring matters were, he thought, even less defensible than preservatives, especially those containing aniline dyes. To add colouring matter to milk, butter, cream, &c., for the purpose of apparently improving its quality was not, of course, as culpable as the addition of a preservative, but their addition for making a food more attractive required restraint. Nearly all colours could be obtained by harmless although sometimes more costly means. The addition of copper sulphate was quite indefensible. Coming to the conclusion of his remarks Dr. Grünbaum said that he was anxious that the blame in this matter should be correctly apportioned. As regarded colouring matters the public were chiefly to blame, but they could soon be educated to a sanitary level. If brightly coloured foods could

nowhere be obtained the public would buy the other. As regarded preservatives in milk, cream, &c., the blame seemed to rest chiefly with the railway companies and with the ice-vendors. Ice was used far too little in England principally on account of its exorbitantly high price, for most people, he imagined, preferred to have their summer drinks cold. He believed the cow-keeper would use a refrigerator if ice could be obtained at a reasonable price. But the railway companies were the chief offenders. They did not supply refrigerator vans, they required milk-cans to be sent open (unless they were full) in spite of the obvious risks of contamination, their rates were too high, and their servants were too careless. Indeed, they seemed almost to take a malicious pleasure in putting milk-cans in the sun. It would appear, therefore, that some injustice might be done by legislating too hardly for the purveyors of perishable foods, unless at the same time rational treatment of the same from their carriers were required.

Dr. A. HILL unreservedly endorsed the views set forth in Dr. Grünbaum's paper. He himself two years ago, at the meeting of the Sanitary Institute in Birmingham, proposed similar measures, and emphatically laid down the proposition that no antiseptic should be added to food unless its nature were declared. He also maintained that in cold a perfect means of preservation existed, while it had the advantage of adding nothing, subtracting nothing, and of not affecting the flavour or digestibility of the article. He had also brought forward a motion, which was carried unanimously, advising that Government should take steps to prevent the use of antiseptics in food. He quite agreed with Dr. Grünbaum as to the danger of using aniline or other dyes and he described a case of prosecution for dyeing sugar with an aniline dye in which the surprising decision of the bench was in effect that though they found it was proved that the sugar was dyed, yet *it was of the nature, substance, and quality demanded by the purchaser.*

Mr. W. C. C. PAKES (London) said that sodium sulphite was largely used by pork-butchers. Although he agreed entirely with Dr. Grünbaum as to the desirability of preventing the addition of preservatives to such food-stuffs as milk and butter, he doubted whether they would be able to prevent such additions in the immediate future.

Dr. D. WALSH (London) said that though the vendor might declare the addition of a preservative and the purchaser might buy the food so preserved with his eyes open, and the transaction would then be *bonâ fide* according to Dr. Grünbaum's definition, nevertheless, a vast amount of harm might be done to the individual by their consumption. What was wanted was a more accurate knowledge of the remote effects of the drugs so used on the human system. Without such knowledge the demonstrated facts upon which to base legislation on the matter of food preservatives were lacking. While the whole matter was in this transition stage Dr. Grünbaum's suggestion of food asepsis as against antisepsis was of great practical value and formed one of the most important contributions yet made to the subject.

Dr. MCWALTER thought that the motion was far too sweeping. It would involve the disuse of salt in food and would injure trade.

Dr. THRESH thought that salt must be left out of the list of condemned preservatives because it was a necessary article of food and must be used in many instances to procure palatability.

Dr. GRUNBAUM, in replying, thought that if a strong enough stand were taken it would be possible to enforce any standard of purity that might be considered necessary.

Dr. GRUNBAUM'S motion was then put:—

That in the opinion of the Section of State Medicine of the British Medical Association the addition of preservatives to milk, butter and similar products, beer, and wine should be prohibited and their additions to other foods regulated by statute.

Dr. COOPER PATTIN seconded the motion and it was carried unanimously.

PSYCHOLOGY.

FRIDAY, AUGUST 3RD.

Dr. C. C. EASTERBROOK (Edinburgh) read a paper on

Organo-therapeutics in Mental Diseases.

Brown-Séquard in 1889 enunciated his doctrine of internal secretions as the results of experiments made with the extracts of healthy organs and stated that "all glands and all tissues have an internal secretion: all injected subcutaneously have a tonic effect." The use of the thyroid first as a grafting and then as a preparation to be administered by the mouth, due to the work of Mr. Victor Horsley (1891) and Dr. G. R. Murray in this country, gave a further impetus to organo-therapeutics. Organo-therapeutics in the insane was based on the assumption that the various organic substances administered had a therapeutic effect on the brain and nervous tissues. During the five years past Dr. Easterbrook had administered to patients suffering from insanity the following organic extracts: thyroid gland, thymus, pituitary body, cerebrin, splenin, orchitin, ovarin, supra-renal extract, &c., to determine their value and to ascertain their pharmacological action. An essential point in the work thus undertaken was to administer the organic extracts only to patients whose insanity was definitely making no progress towards recovery under the methods adopted in the asylum, or whose insanity was becoming chronic or incurable. It was necessary always to exclude the effects of "mental suggestion." The sheep was the animal used to supply the organic extracts and these were administered in dry tabloid forms as prepared by Messrs. Burroughs and Wellcome. Each patient was put to bed during the period of experiment and was given a staple diet sufficient to maintain body-weight at its usual level, the administration of the extract beginning on the fifth day. The patient was weighed weekly during treatment and for a month after. The urine was regularly examined and the urea was estimated by the hypobromite method. The phosphates in the urine were determined by the uranium method. The thyroid extract was administered in 130 cases of insanity (45 males and 85 females) with the following results. Where large doses were given there followed pyrexia in most of the cases to a slight or moderate degree. Loss of weight was a constant symptom, also increased sweating, pains, and tinglings in various parts of the body, and a slight or moderate degree of exaltation or restlessness. There was tachycardia in most cases, and the respirations were increased by about six per minute. Appetite and thirst increased, and in females menstruation was made more profuse than usual. Urea and nitrogenous products were increased in the urine, showing an enhanced metabolic activity. Slight transitory albuminuria was found in 10 per cent. of the cases. In moderate and small doses the above results were present in a correspondingly less degree, and it was concluded that the thyroid extract acted as a powerful metabolic (katabolic) stimulant. The patients included five idiots and imbeciles, seven pubescent or adolescent cases, and cases of mania, melancholia, myxœdema, alcoholic, and general paralytic insanity, &c. Of a total of 130 patients 12 recovered, 29 were improved, and 89 were unimproved. The recoveries included four cases of stupor, three of puerperal mania, one of lactational melancholia, one of myxœdema, one of simple melancholia, and two of climacteric melancholia. These patients also improved physically. The threatened attacks of *folie circulaire* were aborted by thyroid administration. Parathyroid extract was given to a few patients with slight or practically negative results. Thymus extract given in two cases produced no improvement, and pituitary extract given in four cases (two being cases of general paralysis, one of adolescent melancholia, and one of monomania of persecution) produced no improvement. Cerebrin was given in 19 cases; in 14 the patients remained unimproved, three were improved (females with adolescent, climacteric, and senile mania), and two recovered (females). Orchitic extract was given in eight cases and three were slightly improved. Ovarian extract was given in 36 cases (all females); four of these were stuporous and improved temporarily, the others were unimproved. It was concluded that the thyroid had an active principle (Baumann's iodothyrin) the effect of which was to increase tissue-oxidation far above all other substances, and this continued so long as the drug was taken, so that the beneficial changes in metabolism (in suitable cases) might be made to endure for a considerable period.

Dr. J. G. SOUTAR (Gloucester) regarded the subject of organo-therapeutics as one of great importance, and the statements in Dr. Easterbrook's paper as cautious and moderate. It brought them to the point which those of them who were not over-sanguine had desired to reach—viz., the value of organic extracts as an aid to treatment in a limited number of cases of mental disease. The first case treated at Barnwood House Asylum was apparently one of confirmed dementia of long standing secondary to puerperal mania, which improved rapidly and surprisingly under thyroid treatment. Since then cases of many types of

insanity had been treated, but although a degree of improvement was obtained in some cases no other recovery had followed.

The PRESIDENT (Dr. PERCY SMITH of London) said that like Dr. Soutar he had expected a great deal from the treatment of mental cases with thyroid extract, but had been on the whole disappointed. He had seen marked improvement up to a certain point result in some chronic cases but without positive recovery.

On some Cardio-psychical Associations.

Dr. JAMES WHITWELL, medical superintendent of the Suffolk County Asylum at Melton, read a paper on this subject. He pointed out that imbecility might be associated with cardiac hypoplasia and gave an account of a case (non-syphilitic) in illustration. Two cases of a similar type had been previously recorded by Hagen.[1] In a second class of cases congenital or infantile cardiac disease was present and compensation had been established. The intelligence in such cases remained at the childish level. Varieties of mood and disposition towards impulsiveness, sexuality, &c., might be present in different subjects of this class, the permanent condition common to all being that of physical and psychical immaturity. In cases of another class—viz., adults with cardiac disease—the symptoms varied as follows. A class of case showing mitral disease (especially stenosis) had gradually developing irritability, distrustfulness, and impulsiveness. Such patients were hyper sensitive and morbidly suspicious, sometimes apparently with definite hallucinations. In connexion with aortic disease Dr. Whitwell had no case showing any evidence of intimacy of association leading to the production of mental symptoms. These cases, he added, were complicated by syphilis or general paralysis, themselves such potent bases of cerebral and mental disorders. A final group included cases of senility with cardiac asthenia and associated cerebral erethism, the evidence suggesting that the cardiac condition was primary, the mental symptoms being but an exaggeration of the mental condition typically present in acute cardiac asthenia. In advanced and hopeless cardiac cases where the heart refused to respond any longer to cardiac stimulants and failed beyond hope of recovery the patient might exhibit a condition of mental buoyancy and *bien-être*, this condition being probably due to an illusion of the muscular sense, so that the patient put forth unusual muscular efforts which he would not attempt in health, with the result that sudden death was frequently the result.

Blood-pressure in the Insane.

Dr. MAURICE CRAIG, assistant medical officer at Bethlem Hospital, read a paper on this subject. He stated that the blood-pressure was high in cases of simple melancholia and low in mania and agitated melancholia. Altered blood-pressure was a symptom rather than a cause in these mental disorders. A parallel was drawn between mania and the condition of sleeping and dreaming in regard to the absence of attention and the fantastic arrangement of ideas. In both conditions the blood-pressure was low. In general paralysis, after the initial stage, the blood-pressure was remarkably low and it was surmised that the same would probably be found in somnambulists. Low blood-pressure was present in states of restlessness, and with the idea of raising the blood-pressure a saline injection into the bowel should be attended with good results. In several restless patients, otherwise also suitable for treatment, the injection of from eight to 10 ounces of water into the rectum every morning was followed by an improvement of symptoms if the water was retained. The observations collected were necessarily few and not complete enough to make definite and reliable statements and more might be learnt could the experiences of other observers be collated.

Brief remarks on the above papers were made by Dr. E. S. PASMORE (Banstead Asylum), Dr. HARRY CORNER (London), Dr. ROBERT JONES (Claybury), Dr. LLOYD ANDRIEZEN (London), Dr. SEYMOUR TUKE (London), and the PRESIDENT, after which Dr. WHITWELL and Dr. CRAIG briefly replied.

The PRESIDENT read a paper on

Peripheral Neuritis and Insanity,

referring especially to the conditions described as "psychosis polyneuritica" by continental alienists. This condition was always secondary to toxæmia resulting from either alcohol, metallic intoxication, acute or chronic fevers, or septic processes. The mental disorder in these cases was a disturbance of attention, a loss of memory (amnesia) and of orientation, mental confusion and restlessness, especially at night, together with hallucinations. A summary of cases of peripheral neuritis associated with insanity at Bethlem Hospital during the years 1885 to 1898, and private cases during the past two years, included 20 in all, four being males and 16 females. Of the male patients, three were undoubtedly alcoholic, and of the females 11 were certainly alcoholic. Varying degrees of anæsthesia, analgesia, and paralysis were present in the limbs and body, with tenderness in the muscles and nerve-trunks. The mental symptoms were well-marked as stated above and could be variously grouped as maniacal, amnesic, delirious, hallucinatory, &c. He had not seen a single case of polyneuritic psychosis due to septic or metallic poisoning.

In the discussion following the paper Dr. JAMES P. STEWART (Clifton) mentioned two cases, one associated with alcoholic intemperance and the other with lead poisoning, while Dr. J. G. SOUTAR had seen two cases due to sulphonal poisoning. In all four cases the characteristic symptoms of polyneuritis, marked amnesia, loss of orientation (sense of locality), and more or less loss of the sense of personal identity were present.

Dr. E. S. PASMORE had seen two cases, one of alcoholic origin and the other associated with diabetes, both suffering from polyneuritis and amnesia as described by the President.

The following resolution was then passed by the meeting unanimously:—

That this section of the annual meeting held at Ipswich, 1900, begs to draw the attention of the Council of the Association to the fact that the present title of the section—viz., "Section of Psychology"—is a misnomer, and recommends that in future the section should be called "Section of Psychiatry."

A vote of thanks to the President and secretaries brought the meeting to a close.

[1] Psychiatrisches Centralblatt, 1872.

PHYSIOLOGY.

FRIDAY, AUGUST 3RD.

Anæsthetics and Urinary Secretion.

Dr. W. H. THOMPSON, Professor of Physiology in Queen's College, Belfast, read a paper on the above subject. He had worked with dogs and had obtained the urine usually through a cannula in the ureter, though occasionally from the bladder. The anæsthetics studied were (1) ether, (2) chloroform, (3) the A. C. E. mixture, and (4) ether-chloroform (2 to 1). Ether usually produced diuresis, with increase in the total nitrogenous excretion. Chloroform, on the other hand, generally reduced the quantity of urine as well as the total nitrogenous output; the diminution, however, was followed by increase in both during the hour following the anæsthesia. The immediate effects of the A.C.E. mixture were variable, but its administration was invariably followed by diuresis. The ether-chloroform (2 to 1) mixture produced negligible effects on the renal secretion. After all anæsthetics the urinary chlorides were reduced in quantity. Albuminuria also occurred in some cases, probably rather from hæmorrhage due to mechanical injury than to renal disturbance. Grape sugar was found in most cases after anæsthesia. Glycuronic acid compounds and pentose could not be detected.

Dr. DUDLEY W. BUXTON (London) and Dr. A. G. LEVY (London) read a paper on

The Effect of Some Anæsthetics on the Kidney.

These observers had made physiological experiments on animals, and observations on human beings undergoing surgical operations. In dogs they had repeated experiments published by Kemp and Thomson, who found that ether produced shrinkage of kidney volume, accompanied by albuminuria and partial or complete suppression of urine. Dr. Dudley Buxton and Dr. Levy had only been able to corroborate this in five dogs out of 12, although the anæsthetic was fully pushed, and then only when the administration had been prolonged and the dosage great. They had never observed complete suppression, and such retardation as did occur passed off on cessation of anæsthetisation. In man they found that during the 24 hours following anæsthetisation the urine was diminished in quantity, but of higher specific gravity. The latter suggested that excretion had not been impaired by the anæsthetic, and the former was (at all events largely) due to—e.g., purgation, diminution of intake, and occasionally to vomiting. In only 2 7 per

cent. of their cases had they found albuminuria after anæsthetics unless present before, though albuminuria when already present was not infrequently increased by the anæsthetic. They attributed Kemp and Thomson's "ether-effects" to excessive use of the drug.

The paper by Professor W. H. THOMPSON and that by Dr. DUDLEY BUXTON and Dr. LEVY were discussed together.

Dr. AUGUSTUS D. WALLER, F.R.S. (London), commented on the great difference between the anæsthetic properties of ether and chloroform, the relative strength of which he estimated as being in the ratio of 1 to 8. He referred to the supposed injurious effects of ether, intimating that in spite of the apparently greater safety attached to the use of that drug, he would prefer chloroform in the hands of an expert anæsthetist.

Mr. B. MOORE (London) asked Professor Thompson whether he had observed the rate of flow of urine when ether was pushed so far as to bring about a fall in blood-pressure. He also asked how soon after the commencement of anæsthesia sugar and albumin appeared in the urine. He had himself failed to find either sugar or albumin in urine excreted immediately after operations.

Professor R. J. ANDERSON (Galway) alluded to the well-known direct action of chloroform on mucous membranes and to possible reflex effects on other organs arising therefrom. He advocated detailed study of the effects of anæsthetics on the mucosæ with which they came in contact, suggesting that the renal effects of anæsthetics might possibly be conditioned by influences reaching the organ from the central nervous system and initiated in the respiratory mucosæ.

Professor THOMPSON, in reply, stated that he had never pushed ether to the extent of causing a fall in blood-pressure. He had never estimated the quantity of sugar found, although it was usually present in measurable quantity.

Dr. DUDLEY BUXTON, in replying, expressed great appreciation of Professor Thompson's paper. He had not attended to the possible effects of anæsthetics on the respiratory mucosæ. He regarded the initial rise in blood-pressure which sometimes occurred in the early stages of chloroforming as being due less to the direct action of the drug than to the muscular movements which were incidental to its administration. He thought that much distrust of ether was caused by clumsy administration. It was not unusual to see ether pushed to a largely unnecessary extent. Once anæsthesia was established the amount of anæsthetic necessary to maintain the state was very small. This fact was overlooked by many administrators of ether.

Dr. AUGUSTUS D. WALLER, lecturer on physiology at St. Mary's Hospital Medical School, London, read a paper on

A Digital Sphygmograph,

and gave a demonstration of the instrument. The instrument consisted essentially of a stiff spring on which lay a light lever which when in use rested on the nail of the middle (or other) finger. The finger rested on a support which could be screwed towards or from the spring, and so the finger could be subjected to any desired pressure. The "law" that the "pulsations of an artery are at maximum when the pressure on it externally is equal to the pressure of the blood within it" enabled them to use this instrument to ascertain the pressure in the vessels of the nail bed. This the digital sphygmograph indicated to be about 2 cm. of mercury. Measurement of the interval between the "digital pulse" and the heart-beat suggested that the pulse in question was that of pre-capillary arterioles. The pressure (2 cm. of mercury) above quoted was not a constant one, but varied in different individuals and in the same individual at different times.

The PRESIDENT (Professor W. D. HALLIBURTON) had seen and used Dr. Waller's sphygmograph before and had a high opinion of the possibilities that it offered for future investigation.

Dr. WALLER also read a paper on

The Retinal Response to Light.

Frogs' eyes were employed and connected with a galvanometer in such wise that their electromotive condition was shown by movements of the galvanometric mirror. The eyes were subjected to alternate light and darkness. At the commencement of illumination the galvanometer indicated a "positive variation" of the initial current of injury, and at the close of illumination another variation in the same direction. Massage of the eyeball reversed this variation. At the close of the paper Dr. Waller alluded to a distinction between living and non-living matter exemplified in his above-quoted experiments, to which he had lately devoted his attention and which he proposed to demonstrate on a subsequent occasion.

The Intermittent Pulse.

Professor A. R. CUSHNY (Ann Arbor, Michigan) demonstrated tracings of an intermittent pulse. He had already read a paper on the subject in the Section of Medicine. He called attention to occasional omission of a pulse-wave in the sphygmograms, and pointed out variations in the interval between the waves preceding and following the one dropped. He had succeeded in experimentally producing a like phenomenon in dogs.

The Structure of the Mucous Membrane of the Œsophagus.

Professor D. J. COFFEY (Dublin) read a paper on this subject. Rüdinger had noticed in 1879 certain glands in the human œsophageal mucosa, and Schaffer had described them in detail some 18 years after. They were restricted to the upper end of the tube and were said to lie in the lateral "bays" of the mucosa. They were confined to the mucous membrane itself, whilst the ordinary, well-known mucous glands of the viscus reached beyond the muscularis mucosæ. They differed morphologically from mucous glands in being markedly tubular. They were, according to Schaffer, very like the cardiac glands of the stomach, even at times to the extent of possessing "oxyntic" cells. Where they were found the muscularis mucosæ was quite distinct and their relation to it was beyond doubt. They exhibited *inter se* minor differences in structure and distribution.

The PRESIDENT and Professor W. H. THOMPSON expressed great appreciation of Professor Coffey's paper. The latter had had the privilege of seeing many of Professor Coffey's sections and was much struck with their clearness.

Influence of Salicylate of Sodium on General Metabolism.

Dr. FRANCIS W. GOODBODY, Assistant Professor of Pathological Chemistry in University College, London, read a paper on the above subject. He had experimented on two individuals, one of whom had a tendency to excessive excretion of uric acid and to occasional gravel, whilst the other appeared to be free from such tendencies. Both were fed on a carefully-weighed and analysed diet, and their excreta were analysed daily, both prior to and during adminstration of salicylate of sodium. He concluded (1) that sodium salicylate increased the quantity of water excreted and also the specific gravity of the urine, the latter being due to increased elimination of nitrogenous substances, especially urea; (2) that the drug increased the breaking up of the proteids in the body; and (3) that in spite of its cholagogue action the drug had no influence on general metabolism so far as the absorption of proteids and fats was concerned.

Changes in Volume of the Sub-maxillary Gland accompanying Secretion.

Dr. J. L. BUNCH (London), Research Scholar of the Association, read a paper on this subject. The gland was found to vary in volume through change (1) in the amount of blood going to it, or (2) in the amount of secretion coming from it. It reacted passively to changes in general blood-pressure and actively by local vaso-dilatation and secretory discharge. Pure vascular effects were shown by an atropinised gland on excitation of the chorda tympani. Excitation of the chorda tympani in the absence of atropin caused shrinkage of the gland in spite of vascular dilatation therein. Allowing for this dilatation the shrinkage due to extra-vascular structures (cells) could be estimated. Comparison of the volume of saliva secreted during an experiment, with the volume lost by the extra-vascular structures in the gland, showed that at least 90 per cent. of the secretion came from the extra-vascular structures in question.

The PRESIDENT complimented Dr. Bunch on his interesting results, commenting on the great value of the plethysmograph as a means of research.

Mr. W. LEGGE SYMES (London) showed an Embedding Bath designed with special reference to stability, constancy, economy, and convenience. The most striking features were the shape of the bath and the means by which the size of the by-pass of the thermostat was controlled.

PATHOLOGY.

THURSDAY, AUGUST 2ND.

The Etiology of Tropical Dysentery.

Professor SIMON FLEXNER (Philadelphia) in reading a paper on this subject stated that attempts to establish a common etiological factor for all cases of dysentery had thus far

failed. As must always happen when classification of a disease proceeded upon clinical and pathological rather than upon etiological lines the literature of dysentery was burdened with an interminable mass of appellations indicating either the nature of the disorder or the individual author's conception of its pathological anatomy. Dysenteries, however, were now divided by the chief writers into several groups depending upon the clinical history or the mode of prevalence. Thus Osler wrote of the acute catarrhal, the tropical or amœbic, the diphtheritic, and the chronic dysentery. Davidson considered the subject under two headings; first according to prevalence, as epidemic, as endemic, and as the dysentery of war and famine; secondly, and clinically, as acute, as fibrinous or pseudo-diphtheritic, and as chronic dysentery. Kartulis described endemic, epidemic, and sporadic varieties. Manson spoke of catarrhal and ulcerating dysentery; whilst Delafield distinguished at least five distinct types of the disease as occurring in the environs of New York, and only one of these five types appeared to be due to a specific agent, the amœba coli. The history of the bacteriological investigation of dysentery was then referred to, but the majority of the micro-organisms enumerated, except that described by Chantemesse and Widal, did not appear really to be possessed of any specific properties. Investigations carried on by Ogata in Japan in connexion with an epidemic of dysentery had given more convincing results. Ogata had isolated a fine bacillus, which stained by Gram's method, which liquified gelatin, and which caused intestinal ulceration in guinea-pigs and cats. Vivaldi in Padua had isolated from cases of dysentery a bacillus which resembled Ogata's, but the organism had not been isolated again. Shiga investigated the dysentery which occurred in Tokyo in 1897, and succeeded in isolating from the intestinal dejecta and from the mesenteric glands a bacillus which appeared to bear a causative relation to the cases of disease in which it occurred, and which resembled a bacillus which Professor Flexner himself had isolated from cases of dysentery occurring amongst American troops in the Philippines. In the Philippines the disease had occurred mainly in two forms—the acute and the chronic. Amœbæ were either absent or very difficult to find in the dejecta from the acute cases, whilst they were commonly found in the chronic cases in which ulceration was present. In the chronic cases, however, they were variable both as to occurrence and as to the number of them present. Large hepatic abscesses, usually single, were met with in a number of these cases. In the bacteriological examination of both acute and chronic cases pyogenic bacteria were always present, but their presence was held to be accidental. From many of the cases a bacillus undoubtedly identical with that isolated by Shiga from cases of dysentery in Japan was identified. The cultural characteristics of this organism, its morphology, and the evidence connecting its presence with the causation of the disease were then fully described. In concluding, Professor Flexner said that he was disposed to view tropical dysentery as including a bacillary variety and an amœbic variety, separable both in their early and later stages by their clinical history, by their etiology, and by their morbid anatomy. Whether epidemic dysentery might have a simpler etiology future studies would be necessary to decide.

Dr. PATRICK MANSON (London) in his remarks on Professor Flexner's paper, agreed that they must look for more than a single cause for cases of dysentery. There were clinical varieties of dysentery, each of which probably had its specific cause. He felt sure that recurring or relapsing dysentery was not always due to the presence of amœba coli.

Papers by Dr. LAZARUS-BARLOW (London) on Lipomata of the Kidney and by Dr. WILFRED J. HARRIS (London) on the Pathology and Significance of the Argyll-Robertson Pupil concluded the proceedings of the section.

DISEASES OF CHILDREN.

THURSDAY, AUGUST 2ND.

Mr. NOBLE SMITH (London) read a paper on

Ambidexterity as a Method of Teaching Children.

Replying to the President's query concerning fencing in the discussion upon lateral curvature he said that there were a few cases in which lateral curvature had been attributed to its influence, but more evidence was wanted. Given a predisposing cause a very small exciting cause was needed to develop lateral curvature. One patient he had cured who having taken to fencing relapsed. When the fencing was stopped the patient at once improved. Mr. Noble Smith advocated fencing with both hands alternately. He then dwelt on the great value put by employers on ambidexterity in all trades and arts. For this reason pianoforte players were superior to their fellows as they were able to use both hands. There was a popular idea that right-handedness was natural. There were disadvantages in onesidedness, as it led to over-work of one-half of the brain. It was curious and interesting that evidence showed that if the left hand was being educated the right hand did better work also, especially in drawing and writing. He then drew attention to the production of deformity by the use of one side, hand, and arm, especially in lateral curvature of the spine. It was noteworthy that in so many of these cases there was a bend to the right of the upper part of the spine. The exciting causes were mainly unilateral, standing on one leg, playing the violin, wrong position in sitting, and use of the right arm. In his experience shortness of one leg had produced lateral curvature in many cases, the lumbar curve being the chief and primary one, the dorsal one being the secondary one. The left leg was the short one most frequently. The onesidedness in such patients was undoubtedly a great cause of curvatures. They seemed to have a great tendency to lean to the left and to walk in the dark or when they had lost their way to the left, the right side leading, so to speak. He here mentioned cases of right- and left-sidedness among the lower animals and mentioned that flies seemed to move to the right, as they always flew into his left eye.

The PRESIDENT (Dr. FREDERICK TAYLOR of London) questioned whether they might not be retrograding in civilisation by becoming ambidextrous after one hand had got so specialised for many generations. He then dwelt humorously on the many inconveniences which might occur if bimanualism became common, the difficulties of knowing which hand to shake hands with, how to place the knife, fork, and spoon on a table, and the like.

Mr. W. GREEN (Portsmouth) made a few remarks.

Mr. MUIRHEAD LITTLE (London) drew attention to the great slowness with which the left hand learned any new movement.

In reply Mr. NOBLE SMITH said that he had only dealt with the fringe of the subject and hoped to pursue further investigations.

Mr. MUIRHEAD LITTLE read an analysis of

A Series of Cases of Infantile Paralysis with some Notes on Treatment.

There were over 115 cases with 147 limbs involved. The palsies were much more severe in the legs. The palsy was on the left side in 78 cases and on the right in 68 cases. One-third of the cases occurred in the second year of life. In some there was no acute loss of power. In 43 there was a sudden paralysis. In 19 the child was found palsied in the morning after having been put to bed all right overnight. There were convulsions (fits) only in four cases and there was unconsciousness in six others. Teething was hardly ever a cause of infantile palsy. Accidents, including falls, accounted for nine cases. One case only was said to come from sitting on damp grass. There were 20 cases of talipes equinus, 20 cases of talipes varus, 14 of talipes equino-valgus, 5 of talipes calcaneus, 18 of talipes calcaneo-valgus, 21 of talipes valgus, 14 of pes cavus, 15 of "flail ankle," 1 of weak foot, and 1 of weak knee. In four cases the upper extremities were involved. Probably the proportion given was not a true one of the ratio of affection of the upper limbs, because disease of the upper portion of the spine was more likely to kill and deformities of the feet and legs were more likely to be brought before the notice of the surgeon by the parents. Among the principal muscles affected were the following: the flexors of the great toe in 64 instances, those of the four outer toes in 66 cases, the tibialis posticus in 90 cases, the tibialis anticus in 100 cases, the extensor proprius pollicis in 79 cases, that of the four outer toes in 88 cases, the peroneus longus in 74 cases, the triceps cruris in 55 cases, the flexors of the knee in 66 cases, and the quadriceps extensors in 52 cases. Attention was drawn to the cases wherein a wasted thigh was succeeded by a well-developed and well-nourished leg and calf. Under the head of treatment Mr. Muirhead Little considered tenotomies and

the suitable training of weak muscles. Eight cases were dealt with by tendon grafting, of which details were quoted. In four cases a stiff ankle was purposely made.

Mr. NOBLE SMITH remarked on the transplantation of tendons, or rather the transference of muscular power from one place to another. This should be considered, to be successful, as, in fact, an addition to their methods of treatment, not as a substitute. The deformity should be removed first, then the tendons might be transplanted. The improvement in the nutrition of the foot was very marked after tenotomy, although the operation was not on or very near the palsied muscles. This fact suggested whether it might not be well to try doing tenotomy of the palsied muscles in order directly to affect their nutrition in the same way.

Mr. JACKSON CLARKE (London) was glad that the question had been brought forward by Mr. Little as Mr. Little's father had introduced the subject of the surgical treatment of paralysis to the profession. He discussed the effects of the transplantation of tendons.

Mr. NOBLE SMITH related one case of transplantation of tendons with complete success.

Mr. MUIRHEAD LITTLE, in reply, dwelt more fully on the tenoplastic operations. He was always careful to get reduction as far as possible of the deformity first. He also advocated the use of instruments after the operations to support the new tendons.

FRIDAY, AUGUST 3RD.

Dr. SAMUEL WEST (London) introduced a discussion upon

Enlargement of the Spleen in Children,

as follows. Children are subject to the same enlargements of the spleen as adults, but with a frequency which varies according to the degree to which they are exposed to the common exciting causes. In childhood growth is active; this presumes active growth in the blood and blood-making organs to keep pace with the general demands of the body. Active growth implies instability of structure, so that slight causes may produce great disturbing effects. It might therefore *a priori* be expected that children would be subject to enlargements of the spleen of a kind and with a frequency uncommon in the adult. Besides this, enlargements of the spleen are more easy to detect in the child. In what now follows I shall address myself to enlargement of the spleen as it is met with in children, drawing attention to the points in which adults and children differ, and finally dealing fully with the forms of splenic enlargement which are more or less peculiar to children and infants.

In all the specific fevers and the septic diseases alike post-mortem observation proves the spleen to be almost without exception enlarged, though it is by no means always easy to demonstrate this enlargement during life. I do not know that there are any post-mortem statistics to prove that enlargements of the spleen are more common in these fevers in the child than in the adult.

Malaria.—Malarial enlargement of the spleen in this country is certainly rare in children, for ague is rare, but not so in countries where malaria is common. It may then be found where there is little or no evidence of definite malarial attacks.

Leucocythæmia is usually met with in the middle periods of life and is comparatively uncommon in children and very rare in the very young, yet well-marked instances have been recorded in infants of a few weeks—e.g., from eight to ten weeks old.

With *Hodgkin's disease* the difficulties are greater but they arise chiefly from the indefinite character of the disease itself. Hodgkin's disease occurs fairly frequently in children but it is very rare before the age of eight years and is, I believe, unknown in infants. Regarded as the cause of splenic enlargement the difficulty of diagnosis with Hodgkin's disease is not nearly so great as it appears, for the spleen becomes enlarged as a rule only subsequently to the enlargement of the lymphatic glands in general, so that there is this general glandular enlargement to assist the diagnosis.

Tubercle.—The spleen is almost the favourite seat of tubercle and rarely, if ever, escapes when tubercle is disseminated either in the acute or chronic form. In the chronic form the enlargement may be considerable, for the spleen may be stuffed with caseous nodules as large as a cob-nut.

Syphilis.—Syphilitic enlargement of the spleen is of clinical importance in one class of cases only—viz., that of infants and very young children.

Splenic anæmia.—All that has been hitherto said has been somewhat of a preliminary and introductory nature leading up to the important subject which we have now more especially to consider—viz., that in which the enlargement of the spleen is associated with profound anæmia and which has been named "splenic anæmia." The name is unfortunate for two reasons: first, that it seems to imply or assume what really is not yet proved, that the anæmia in some way depends upon, and is caused by, the affection of the spleen; secondly, because the same term is applied to two entirely different clinical affections—the one a rare disease affecting adults chiefly and only very rarely children and so far as I know not recorded at all in very young children and in infants, and the other a not uncommon disease to which infants are especially liable, though it may continue from infancy through the first two or three years of life. In either case splenic anæmia has many synonyms—e.g., splenic cachexia, splenic pseudo-leucocythæmia, lymphadenoma splenica, splenomegalie primitive, and many others—names which, on the one hand, indicate the difficulties of diagnosis and, on the other, show how much there is still to be learnt of the real nature of the disease. If the term "splenic anæmia" be retained we must distinguish the two groups as splenic anæmia of the adult and splenic anæmia of the infant.

I do not think it is necessary in this connexion to enter into any details of cases of splenic anæmia of the adult, for they are so rare in children.

Splenic anæmia in the infant.—The nature of the case is often clearly indicated by the peculiar anæmia and the enlargement of the abdomen. The complexion has a peculiar, waxy, ivory-like colour with a tinge of olive-green in it which is very characteristic. The abdomen is tumid and the enlargement of the spleen is often obvious to the eye. The child is usually not emaciated and may be plump, but is very feeble. The blood shows no changes but those of simple anæmia and there is little or no general enlargement of the lymphatic glands. The child is brought under observation usually on account of general ill-health, weakness, and pallor, occasionally on account of respiratory catarrh or gastro-intestinal disturbance or some other accidental complication, but only rarely because the abdomen is enlarged. Most of the other symptoms are accounted for by the extreme anæmia. The splenic enlargement is easy to make out; it may be enormous, so that the organ may extend forward beyond the umbilicus and downwards as far as the anterior superior iliac spine. It moves freely on respiration, is smooth on the surface, and even when much enlarged is not tender to palpation. The changes in the blood are those of simple anæmia, the cells being greatly reduced in number but retaining their relative proportion to each other. The number of red cells may fall as low as 40 per cent. of the normal; if below this the result is almost invariably fatal. The red cells retain their normal amount of hæmoglobin, though some writers maintain that it is reduced as in chlorosis. Nucleated red cells and megalocytes are often present in small numbers, but the eosinophile cells do not vary. If there be any increase in the number of white cells it affects only the lymphocytes and this stands in direct relation, it appears, with the fever. The affection commences almost invariably in infants or very young children, and when discovered for the first time in older children has in all probability dated from infancy. The liability of the sexes is equal. The affection runs a chronic course, lasting some months, but in the end many patients get quite well. But on the ultimate prognosis in general very varying opinions are held by different writers.

The treatment is that of anæmia, and consists of good food, plenty of light and air, cod-liver oil, hypophosphites, iron, and similar remedies. Quinine is useful in malarial cases, mercury and iodide of potassium in syphilitic cases, but the specific remedies, especially mercury, not only do no good, but are actually harmful where the specific cause is absent. Arsenic is a favourite remedy as in other forms of anæmia, but is far inferior to iron.

The association of enlargement of the spleen with rickets and syphilis has been already mentioned, but it is important to consider the relation in which these conditions really stand to one another. Enlargement of the spleen is almost constant in active syphilis of the child. Among infants with congenital syphilis it is found in at least 50 per cent. and in a yet larger percentage among still-born syphilitic fœtuses. The association of syphilis with enlargement of the spleen is, as already stated, held by many to be unfavourable and it is

only in the syphilitic cases that antisyphilitic remedies do good. No doubt rickets and syphilis are often associated, but the figures given by different authors vary. On the other hand the enlargement of the spleen is not constant in rickets. There is no relation between the degree of the rickets and the size of the spleen. Further it must be borne in mind that most of the children of the poor attending hospitals are rickety, irrespectively of the complaint for which they present themselves. The facts bearing on the relation between syphilis, rickets, and enlargement of the spleen appear to be these—(1) that syphilis is occasionally, and rickets frequently, associated with splenic anæmia; (2) that in neither case is the association constant; and (3) that they are neither of them the sole cause and are probably not the cause at all, except perhaps indirectly by means of the ill-health to which either leads.

Another question of interest remains—viz., the relation which exists between the anæmia and the splenic enlargement. There are three possible alternatives: (1) the enlarged spleen may be the cause of the anæmia; (2) the anæmia may be the cause of the enlarged spleen; and (3) both the anæmia and the splenic enlargement may be joint results of some common cause. To the first two there are very strong objections. If neither of these be correct it would seem to follow that the third explanation must be the true one—viz., that both conditions depend upon some common cause. It may be, as some hold, that any condition of the health serious enough to lead to profound anæmia in infants may be associated with splenic enlargement. If this be true it would follow as a corollary that when the health is restored the splenic enlargement would disappear. At the same time there are many objections to so wide a view as this, and it follows that if there be a common cause we do not yet know what it is.

The points to which I would specially draw attention in the discussion which is to follow are:—

1. In the splenic anæmia of infants: (*a*) to its course and duration; (*b*) to its prognosis as regards life and recovery; (*c*) to the relation in which it stands to rickets and syphilis; (*d*) to the relation in which the enlargement of the spleen and the anæmia stand to one another; and (*e*) to the treatment. 2. In other forms of splenic enlargement in children to the frequency in the very young of malaria, leucocythæmia, and Hodgkin's disease.

Dr. MURRAY LESLIE (London) asked for the distinctions between splenic anæmia in adults and in children. He quoted a case in a child, aged 18 months, in which after death simple hyperplasia of the spleen with some fibrosis was found. He also quoted a case of enlargement of the spleen without anæmia or marked leucocytosis.

Dr. A. M. GOSSAGE (London) quoted two cases of splenic anæmia in children in which there was slight increase in number of the leucocytes of all classes and in which there were some myelocytes. One patient died and showed only hyperplasia of the splenic tissue. In his experience syphilis was a more common cause of splenic anæmia than Dr. West had represented. Some cases showed no evidence of either syphilis or rickets. The majority of patients recovered. The anæmia was not proportional to the splenic enlargement.

Dr. THEODORE FISHER (Clifton) said that splenic anæmia was rare in Bristol. In the post-mortem room he did not find the spleen more often enlarged in children than in adults, and sometimes in the specific fevers the spleen was notably small. He had seen several cases of large spleen occurring in members of the same family.

Dr. JOHN THOMSON (Edinburgh) also found that a large proportion of the patients recovered. The anæmia was not proportional to the splenic enlargement. The prognosis was worse with the greater severity of the anæmia. He had seen a large spleen in twins.

The PRESIDENT referred to Dr. C. Wilson's and Dr. J. D. Stanley's cases of enlarged spleen in several members of one family.

Dr. WEST, in reply, stated that the clinical course of splenic anæmia in adults was different from that in children: the result was fatal, and pathological changes were found in the Malpighian bodies. The splenic enlargement was possibly due to a chemical poison absorbed from the intestine. Much attention should not be paid to slight changes in the blood.

Dr. J. H. NICOLL (Glasgow) read a paper on

Congenital Hypertrophic Stenosis of the Pylorus with an Account of a Case successfully treated by Operation.

The patient at birth was healthy, but had always vomited 15 minutes after food, bringing up the whole contents of the stomach, and had rapidly wasted. There was no nausea and constipation was complete. Operation was performed at the age of six weeks. The stomach was found to be much dilated and the pylorus could be felt as a thick ring. The stomach was opened and a pair of forceps was passed into the pyloric opening, which was stretched until the peritoneum burst. The wounds were then closed. There had since been complete relief of the symptoms, and the child, 12 months after operation, was well. Several other cases had been operated on by gastro-enterostomy and pylorectomy but with fatal results. He believed that two successful operations had been performed since his own.

Dr. THOMSON had seen six cases of the complaint in which all of the patients died. Two had been operated on but unsuccessfully.

The Causation of Infantile Scurvy.

Dr. C. E. CORLETTE (Sydney, N.S.W.) in a paper on this subject considered that infantile scurvy was due to the use of boiled or sterilised milk or cooked infant's foods, and was therefore commoner amongst the upper classes. He considered that the anti-scorbutic element in milk was citric acid which existed in milk as calcium citrate to the extent of one gramme per litre (one quart of milk contained as much citric acid as a large lemon). The neutral calcium citrate existed in two forms, the amorphous and the crystalline, the former being much more soluble than the latter. The more soluble form was converted into the other on boiling, and hence when milk was boiled calcium citrate was partly thrown out of solution. Scurvy might be prevented by adding alkaline phosphates which helped to keep the citrate in solution, or by merely pasteurising the milk when so much of the citrate would not be deposited.

Dr. GOSSAGE suggested that alkaline citrates might be added to the milk instead of the phosphates. Scurvy was not really common even amongst children fed on boiled milk. It was met with not so very infrequently amongst the poorer classes in the East End.

PHARMACOLOGY AND THERAPEUTICS.

FRIDAY, AUGUST 3RD.

Dr. F. W. BURTON FANNING (Norwich) opened a discussion on what he preferred to call

The Hygienic Treatment of Pulmonary Tuberculosis.

The result of living in the open-air was a feeling of well-being, increased appetite, improved sleep, and an inability to remain in a closed room; with this change there was a decided reduction of the micro-organisms in the sputum. The remedial effects were not limited to pulmonary affections but could be extended to other forms of tuberculosis, whether affecting bones, joints, or serous membranes. Lupus also was benefited. Modern experience also pointed to the amelioration of such specific fevers as enteric fever, variola, morbilli, and pertussis treated by the open-air method. Functional nervous diseases, like neurasthenia and migraine, were also benefited.

Sir J. W. MOORE (Dublin) referred to his experiences in the grounds of the Dublin Hospital. He insisted specially on the importance of free ventilation at night, windows being opened to leeward.

Dr. CHOWRY-MUTHU (London) attributed much of the benefit of sanatorium treatment to variety and excellence in cooking. A gain of about eight pounds a month was usual. Chronic cases and those complicated with gastric or bronchial catarrh were less suitable. The inhalation of igazol seemed to accelerate the cure. The principal elements in sanatorium treatment were a strong head and good organisation.

Dr. ERNEST KINGSCOTE (London) dwelt on the importance of avoiding draughts though following an open-air life.

Dr. W. CALWELL (Belfast) said that under systematic treatment gain in weight took place in spite of fever. Ordinary catarrh did not occur in the absence of artificial heating. Complicated cases were ill suited to the method. He recommended abundance of fresh air in the nursery.

Dr. JANE WALKER (London) thought that the patients did better in warm weather, though wind was injurious. Warmth and comfort could be maintained by proper clothing and management without artificial heat. Diminution of expectoration was noticed in most cases. She agreed that bronchitic cases did not do so well as others.

Mrs. ESTHER COLEBROOK (Peppard, Oxon.) referred to the overcrowding of the shelters in windy weather, which had an unfavourable influence.

Dr. D SOMMERVILLE (London) stated that under the influence of light and oxygen tubercle bacilli might lose their pathogenic qualities and become saprophytic. He quoted instances of patients who had successfully carried out the treatment without going to a sanatorium.

Dr. S. WOODCOCK (Manchester) also spoke.

Dr. F. HOWARD SINCLAIR (Belfast) read a paper on

The Open-Air Treatment of Consumption in Ireland,

in which he showed that in spite of the greater humidity of the atmosphere results were as favourable as elsewhere. He dwelt on the necessity of consulting the individuality of patients both in the matter of exposure and food.

Dr. BERNARD O'CONNOR (London) spoke of 16 years' experience of the open-air method at the Hampstead Hospital, where the patients wore no head-covering.

The PRESIDENT (Dr. W. G. SMITH of Dublin) referred to the method as one of organised common-sense.

Dr. WOODCOCK also read a paper on the Transplantation of Phthisical Patients to the Country, in which he said that the onset of phthisis was largely a matter of income, occupation, and exposure to infection. It was two and a half times as common among the industrial classes as among other classes. The remedy he advocated was the establishment of consumption colonies where out-door occupations, such as gardening, forestry, stock-tending, and harvesting, could be followed by the patients. Judging by the German sanatoria, which were in close apposition to towns, there was no fear of local infection.

Dr. WILLIAM EWART (London) read a paper on the Subcutaneous Administration of Oxygen, either as free gas or solution of hydrogen peroxide. He described his method and also gave an account of some cases so treated. They were desperate from the outset and none actually recovered, though no harm was done and temporary improvement occurred in some.

LARYNGOLOGY AND OTOLOGY.

THURSDAY, AUGUST 2ND.

Dr. HERBERT TILLEY (London) described

Two Cases of Chronic Frontal Sinus Empyema presenting Features of Unusual Interest,

to illustrate some of the difficulties in the diagnosis and successful treatment of the disease.

CASE 1.—A girl, aged 19 years, sought relief on account of left nasal obstruction and severe frontal headache of 12 months' duration. Examination showed the left nasal cavity to be full of large polypi bathed in pus. The post-nasal space was occupied by a large adenoid mass and the faucial tonsils were hypertrophied. The anterior wall of the left frontal sinus was distended over an area of the size of a five-shilling piece. The right nasal cavity was in all respects normal. The polypi, adenoids, and tonsils were removed. Exploration showed the left antrum of Highmore to be free from pus, while irrigation proved that pus was present in the left frontal sinus in considerable quantity. The anterior half of the left middle turbinal was removed and the ethmoidal region was cleared as far as possible of all pathological products. In the course of a few days the left sinus was freely opened from the outside and its cavity, which was a very extensive one, was curetted free from all degenerate mucous membrane, a free opening was made into the nose, and the sinus cavity was packed with a strip of iodoform gauze two inches wide and three feet 10 inches long. It was noted during the operation that a curette could be passed well beyond the middle line towards the right sinus; it was thought that the extension was a diverticulum of the left sinus, and this surmise was strengthened by the sensation of a blind end given by the curette during the operation. The continuance of free suppuration from the left sinus showed, however, that some suppurating focus remained, and a week after the first operation the right sinus was opened and found to be as much diseased as the left. Both cavities were packed and irrigated every day for three weeks until covered with a healthy mucous membrane when the external wounds were allowed to close. The patient completely recovered and two months after the operation was perfectly free from any nasal discharge. The case illustrated that although both sinuses might be equally diseased and might communicate with one another through a pathological opening in the sinus septum, yet the pus might escape from only one nostril. In this case it was impossible to pass a probe into the right frontal sinus from the nose and hence the diagnosis of pus in that sinus could scarcely be made without an external operation. It would be interesting, Dr. Tilley said, to know the course of events in this case. If the left sinus was first diseased, he asked whether the ethmoiditis on the left side ought to be attributed to the irritation of pus flowing from the sinus above? Since there was no disease in the right ethmoid but advanced disease in the corresponding frontal sinus the view that pus might set up chronic disease of the ethmoid with its associated polypi, he considered, was not an impossible one.

The second case illustrated a difficulty met with in the successful treatment of the disease—namely, when all had been done to remove intra-nasal disease as a preliminary to the external operation, and when by the latter the diseased products had been carefully removed from the sinus, and a free passage into the nose ensued and careful after-treatment had been carried out, yet a small quantity of pus sometimes continued to flow from the sinus.

CASE 2.—A woman, aged 30 years, applied for relief from offensive nasal discharge of two years' duration. The frontal sinuses were both found to be diseased as was also the left antrum which was drained by the alveolar method. The external radical operation was performed on the left frontal sinus, a free passage was made into the nose, and a healthy granulation surface covered the walls of the sinus cavity before the external wound was allowed to close. The patient did fairly well, but there was always a slight discharge of pus into the nose, and a month after the operation an external fistula formed leading into the sinus. Three months later the sinus was again explored and the cause was found to be an extension of suppurating anterior ethmoidal cells outwards between the floor of the sinus and the orbit. These cells communicated with the sinus proper by a small aperture and thus this cavity was infected, although the greater part of it was obliterated by cicatricial tissue. By free removal of the partition walls these ethmoidal cells and the frontal sinus were thrown into one cavity; this was skin-grafted a week later by Thiersch's method. The plan adopted was the same as was carried out in the mastoid operation. Dr. Tilley said that it was too early to speak of the result of the skin-grafting, but so far as he could see it would be eminently satisfactory and in future he would adopt this method of dealing with frontal sinuses in the hope that by its means the same successful and ideal results would be gained together with the great saving of time to the patient that had been secured by skin grafting in the operation for chronic suppuration of the mastoid antrum.

FRIDAY, AUGUST 3RD.

Some Points bearing on the Pathology and Prevention of Loss of Voice in Singers.

Dr. JOBSON HORNE (London) made a communication on this subject and illustrated it with lantern photographs. He alluded to the often heard lament of the present age over its poverty in fine voices and the want of lasting power in singing voices generally. Various explanations had been offered. Some had attributed the decline in singing to the rise in pitch which had been gradual, yet very considerable, during the past century; others had held composers responsible for not having sufficiently considered the voice with the result that the vocalist had had to disregard his capabilities and put his vocal cords at everything—singable or unsingable. It was not the purpose of the paper to consider whether these explanations were or were not sufficient; it was to discuss the pathological processes that would take place in the vocal cords from excessive or unnatural use, processes which represented in modern language the result of "strain" and the cause of "loss of voice." The excessive use of the so-called "chest" register and the disregard for the so-called "falsetto" and "head" register were taken as instances of unnatural use of the voice. Reference was particularly made to the work of Dr. Musehold of Berlin which had advanced the photography of the living larynx to a point that had not been surpassed, and photographs by Dr. Musehold were shown on the screen demonstrating the condition of the vocal cords during the production of the middle "C" in the "falsetto" and "chest" registers respectively. Dr. Musehold had shown that in the falsetto register the glottis was only widened and narrowed, whereas in the "chest" register the glottis was opened and closed, and the cords themselves became more rounded or sausage-shaped in

contrast with their condition in the "falsetto" register. This, Dr. Horne pointed out, entailed greater muscular tension and a greater flow of blood to the submucous and superficial vessels. It was possible to verify this by transillumination of the larynx; if in a darkened room the electric lamp used for transilluminating the frontal sinus was placed against the thyroid cartilage and the image of the cords was observed in a mirror in the pharynx it would be noticed that during the production of a "chest" note the cords became more opaque. This increased opacity was partly due, perhaps, to increased muscular tension, but it was mainly due to increased congestion of the vessels of the vocal cords. Dr. Horne did not wish it to be thought that he was arguing against the use of the "chest" register; he only desired to draw attention to the condition of the cords during its use—or rather excessive or unnatural use—with a view to considering the pathological changes that might result. The superficial vessels, owing to the determination of blood to the surface of the cords, might become tortuous to a degree almost amounting to varicosity. The increased vascularity if often repeated acted as an irritant and the minute capillaries and vascular elements proliferated. This was illustrated by sections through cords the subjects of "chronic laryngitis," which was not necessarily the outcome of an inflammatory process. Hyperplasia of the connective tissue elements and of the glandular structure ensued. Increased functional activity accompanied the latter and was evidenced by a greater flow of mucus on to the surface of the cords and more frequent efforts to clear the voice. The formation of new connective tissue was progressive and the strands of fibrous tissue finding their way in amongst the glandular structure compressed and gradually obliterated it. The glands degenerated and were replaced by fibrous tissue. It was further shown that the muscle fibres themselves become surrounded by connective tissue, isolated areas were cut off and degenerated and the degenerated muscle fibres eventually being replaced by fibrous tissue, the progressive nature of the morbid process was renewed. With this progressive fibrosis the newly-formed vessels were also compressed and gradually disappeared; their disappearance might be partly accounted for by the cords becoming less active in proportion to the loss of muscle tissue. The epithelium undergoes, *pari passu*, a hyperplasia, in time followed by a metaplasia, with, perhaps, the development of warty excrescences about the vocal processes and a diffuse pachydermia laryngis. The terms "chronic laryngitis" and "chronic inflammation," Dr. Horne considered, were not applicable to the morbid process that had been described. The process was not essentially an inflammatory one; moreover, "chronic inflammation," like negative pressure, was non-existent. It would be better for the present to refer to the whole process by its prominent feature as a *fibrosis*. In even quite the earlier stages of this fibrosis the singing function must become seriously impaired. The intrinsic muscles, highly differentiated and specially trained, only too readily forget their office. The changes in the epithelium must materially affect the vibratory power of the cords and the quality of the notes produced. The treatment indicated by a study of the pathogenesis was rest—absolute rest; local applications, local remedies of all kinds, could only aggravate and irritate the process it was sought to arrest. As regards prevention it was of first importance to ascertain the capabilities of any individual vocal organ and then develop rather than train them, and above all things to let the voice be natural.

Dr. STCLAIR THOMSON (London) inquired whether Dr. Jobson Horne from his researches into the pathology of the vocal cords was able to offer a satisfactory explanation for the constant site of singers' nodules on the vocal cords.

Mr. E. WAGGETT (London) asked, if the use of the "chest register" was a cause of loss of voice, why baritones and basses did not lose their voices more readily than tenors.

Dr. W. A. AIKIN (London) asked what meaning Dr. Horne attached to the terms "falsetto," "chest," and "head" registers. He considered that these terms occasioned a good deal of confusion and it would be better to give them up for more scientific ones.

Dr. LAMBERT LACK (London) said that after looking into books on the subject he had found himself in the same difficulty as the last speaker.

Dr. HORNE, in reply to Dr. StClair Thomson, regretted that he was not at present prepared to usefully answer the question. He considered that an explanation not based upon histological evidence would be premature. In reply to Mr. Waggett he said it was rather the abuse than the use of the "chest register" to be considered a cause in "loss of voice" and for that reason it was more often a cause amongst tenors than baritones. He fully agreed with Dr. Aikin and Dr. Lack that the time had come when the terms referred to might be given up for others denoting the physical appearances of the cords during the use of these registers observed and described by laryngologists.

Mr. ERNEST WAGGETT read a paper on

Bezold's Complication of Suppurative Mastoiditis.

Escape of pus, he said, from the mastoid cells into the digastric groove was not extremely rare, but the following instance was worthy of attention on account of certain diagnostic features which were unusual, while points in the history of the case raised questions of practical value. The patient was a man, aged 30 years, with muco-purulent otorrhœa of three months' duration. A minute perforation of the anterior inferior region of the drumhead was enlarged by linear incision, and antiseptic treatment was prescribed coupled with repeated Politzerisation. Three weeks later the patient returned with true pus issuing from the perforation which had assumed its former minute dimensions. Occipital pain was present, but no local tenderness. Incision of the drumhead was repeated. Within 24 hours an area of œdema developed over the site of the exit of the mastoid vein from the posterior aspect of the mastoid process. Sinus phlebitis was therefore suspected, but within a few hours swelling and œdema appeared in the situation of the infra-auricular gland behind the maxillary articulation and a diagnosis of suppurative adenitis was made. Positive evidence either of mastoid suppuration or sinus phlebitis was completely wanting. An attempt was made to exclude Bezold's complication just before operating, firm pressure being exercised over the external swelling while the perforation was observed through the speculum. After such pressure had been exerted for about 20 seconds pus was seen to spurt from the perforation, establishing the diagnosis of Bezold's complication. The mastoid operation was performed and the greater part of the mastoid process was removed. A small fistula piercing the roof of the digastric groove was found leading to an abscess cavity which extended forwards from under cover of the digastric muscle. The mastoid cells were filled with inodorous pus and evidence of caries or necrosis was wholly wanting. Recovery was rapid, uneventful, and complete. The points of interest raised by this case might be enumerated as follows. 1. Repeated Politzerisation coupled with the untimely re-union of the incision in the drumhead evidently served to inject the muco-pus into the antrum and to convert a case of simple tympanic disease into a serious mastoid suppuration. Politzerisation should never be practised in these cases unless the tympanic cavity was observed to be in very free communication with the meatus. 2. In some individuals the outer walls of the mastoid cells were sufficiently thin to be ruptured by the pressure of retained pus without the aid of caries or necrosis. In this instance repeated inflation of a valvular system of cavities might have accelerated the rupture into the digastric groove. 3. Tenderness and œdema as observed in this case at the posterior end of the digastric groove (simulating phlebitis of the mastoid vein) should prove a valuable sign of the commencement of the complication. Statistics as to its occurrence were desired. As a rule Bezold's complication was only diagnosed when a large abscess in the neck had developed. 4 The simulation of infra-auricular adenitis was very unusual, the pus as a rule tracking downwards along the course of the great vessels. In testing an infra-auricular abscess by Bezold's experiment it was essential for the surgeon to keep his eye upon the tympanum whilst he exerted digital pressure, for collections of pus in this situation sometimes communicated directly with the lumen of the meatus and the experiment might lead to an erroneous conclusion unless the above-mentioned precaution was taken. 5. In this case the pus did not spurt through the perforation until pressure had been exerted for some 20 seconds. A case was cited in which prolonged pressure would probably have produced intra-cranial mischief. Momentary pressure will be of no value where pus had to be propelled along a narrow tortuous passage; nevertheless, the question of safety imposed a limit to the duration and degree of digital pressure to be employed.

TROPICAL DISEASES.

FRIDAY, AUGUST 3RD.

Liver Abscess.

The discussion on this subject, adjourned from Thursday, August 2nd, was continued.

Dr. P. MANSON (London) referred to the difficulty of finding pus by exploration and to the necessity for some means of diagnosing the presence of a liver abscess. He stated that the amœba coli was not met with in the sputum unless the liver abscess opened directly into a bronchus, and therefore that the presence of this parasite was diagnosed at too late a stage to be of much value. Leucocytosis was of some value as an aid in diagnosis. Dr. Manson considered that the methods of treating liver abscess in England were more severe than appeared to him necessary. He had practised and taught the benefits of using the trocar and cannula in the treatment of liver abscess, and found that by the insertion of a large drainage-tube afterwards excellent results were obtained. This practice, he found, had been successful in the hands of others. He could not see the necessity for removal of a portion of a rib and the extensive stitching together of parts which such a means of approaching a liver abscess entailed. He was at a loss to understand the cause of the extensive hæmorrhage which had occurred in the Bombay hospitals as the result of exploration by the needle of an aspirator.

Major RONALD ROSS, I.M.S. (Liverpool), stated that in a case of liver abscess which he had lately seen in Liverpool there was no evidence of malarial infection, but leucocythæmia was marked.

Mr. JAMES CANTLIE (London) agreed with Dr. Manson in his remarks concerning the advantages of using the trocar and cannula and condemned the heroic measures in vogue in England. He had long practised the method taught him by Dr. Manson and had every cause to be satisfied with the results. The treatment by the trocar and cannula was one which a tropical practitioner far away from skilled assistance could readily use when single-handed; but the transthoracic or laparotomy methods of reaching pus in the liver involved skilled help in surgical details which, in the great majority of instances in the colonies, was not at hand. The more simple the means of treatment the earlier would investigation of the liver for pus be attempted, and in consequence the more lives would be saved. He could see but little advantage in exposing the liver by laparotomy, as after exposure the liver had to be punctured to reach the abscess.

The PRESIDENT (Colonel K. MACLEOD, I.M.S., of Netley) agreed with all Dr. Manson had said about the unnecessary severity which was practised in operations for liver abscess by surgeons in England. He had seen a laparotomy performed in a case of suspected pus in the liver and the liver exposed by a free incision; the pus was not found, yet after three days the abscess found exit by way of the bowel. When pus from a liver abscess reached the lungs or the pleuræ, the operation practically became one for empyema and the removal of a piece of rib was necessary; or, again, should biliary calculi be present in the pus and the intercostal space prove too small for extraction a piece of rib might require to be cut away. Colonel MacLeod referred to intercostal fluctuation as a sign of pus, noticed most readily on gentle coughing.

The Cyprus Sphalangi and its Connexion with Anthrax.

Dr. G. A. WILLIAMSON (Cyprus) sent a communication on this subject. What was known locally in Cyprus as "Sphalangi bite" seemed to be connected with an insect resembling an ant and belonging to the order Hymenoptera, genus Mutilla, a sting-bearing insect. In a case related by Dr. Williamson a woman was awakened in the night by a sharp bite on the temple; in the morning a dark indurated patch had formed there and an alarming œdema of the face and features ensued. The discharge from the puncture was found to be loaded with anthrax bacilli. Anthrax was common in Cyprus, and the carcass of a dead sheep near by seemed to be the source whence the Mutilla insect had obtained the anthrax bacillus. The treatment consisted of local application of the thermo-cautery and hypodermic injection of a mixture of mercuric chloride and iodide of potassium.

Major RONALD ROSS read a paper on

Some Suggestions for the Improvement of Sanitary and Medical Practice in the Tropics.

Major Ross pointed out the urgent necessity for equipping medical practitioners in the tropics with instruction in such subjects as parasitology as distinct from bacteriology. There were few specialists in this subject and still fewer authorities on comparative parasitology. In London and Liverpool schools for tropical medicine were established, but it was necessary that medical men other than those entering the services, such as private practitioners and ship surgeons, should be trained previously to taking up their duties. He advocated a supply of microscopes, by hire if necessary, to assistant surgeons in India, so that at least the dejecta could be examined. A want of reference libraries even in the large Indian cities was a great drawback to investigations and Major Ross hoped soon to see small modern medical libraries in all the larger towns of our tropical possessions. Specialists in research, organised on a proper footing, were much wanted, and if this country hoped to maintain its scientific position and to do its duty to the natives under its rule provision ought to be made for their support. There was much need, according to Major Ross, of a central scientific authority, and although the Royal College of Physicians of London and the Royal Society were moving in this direction the attainment of such an authority seemed a long way off being consummated.

Dr. S. K. MULLICK (London) stated that for the Indian medical chairs specialists were sorely needed; in the meantime an officer was told off for duty to a chair who was thoroughly untrained for the post. There could be no enthusiasm imported into Indian schools until they had teachers they could respect for their scientific attainments.

The PRESIDENT held that the custom of appointing scientific investigators to a teaching chair was not always a happy one. It frequently happened that a good investigator was a bad teacher, and *vice versâ*, and the primary function of a lecturer in their schools was to be a good teacher.

Yaws.

A discussion on this subject was opened by Mr. JONATHAN HUTCHINSON, F.R.S. (London). A case of yaws was shown by Mr. Hutchinson. The patient, a young man (European), had resided on the West Coast of Africa and had been sent home in consequence of the disease. The lower extremities were covered by an eruption, evidently of a chronic nature, and there were scars on the wrists and palmar and plantar psoriasis. Mr. Hutchinson declared his belief to be that yaws was the source whence syphilis was introduced into Europe. He quoted historical data in favour of the supposition and by a number of photographs and illustrations upheld his belief. He related an instance of a surgeon who pricked his finger whilst operating on a patient suffering from yaws and subsequently developed all the symptoms of syphilis. On the authority of Dr. Daniels he stated that yaws was prevalent in Fiji and that syphilis was unknown, and he maintained that it was because the population was already infected that inoculation by the syphilitic virus was impossible. The photographs sent him by several medical men in different parts of the world seemed to prove the identity of the diseases, although the contributors held opposite beliefs to himself. The slight differences in the diseases he attributed to climate, and the fact that yaws was not met with in this country was because sailors and others becoming infected by yaws abroad developed true syphilis when they came home. Mr. Hutchinson held that the prevalent belief that there was no primary sore in yaws was a mistake and were the cases carefully investigated a local primary sore would always be found. He illustrated the modified sore met with on the skin in yaws by analogy with the slight local signs manifested when syphilis was communicated by, say, an accidental wound on the finger.

Dr. DAVIES (Samoa) stated that in Fiji he had never seen yaws except in children; adults did not seem to acquire it, but so prevalent was it amongst children that parents looked upon it as a healthy thing to have. The Fijians introduced the disease into Samoa and from Samoa it had been carried by the Samoans to other islands of Polynesia.

Dr. P. MANSON opposed Mr. Hutchinson's theory. He believed that Mr. Hutchinson had been misled by untrustworthy diagnosis and by taking too credulously the statements of others. Dr. Manson maintained that inoculation

with yaws did not prevent the inoculated person subsequently contracting syphilis and *vice versâ*. Yaws, like several parasitic affections, died out on reaching a temperate climate, as a high temperature was the one necessity for its continuance and development.

Mr. D. C. REES (London) stated that he had seen yaws and syphilis in the West Africa Coast Hospital side by side, but that in the hinterland he had met with yaws only. The natives in West Africa looked upon syphilis as a newly introduced disease.

The PRESIDENT gave it as his belief that the case shown by Mr. Hutchinson was a case of syphilis, and all present declared that such was their opinion.

Dr. PHINEAS ABRAHAM (London) brought a well-marked case of Leprosy for demonstration. The peculiarity of the case was that in the centre of the pale anæsthetic patches a deep, dark, pigmentary deposit was present. Dr. Abraham also showed a case of Lichen Scrofulosum in a Young Girl.

At the close of the meeting a vote of thanks to the President was proposed by Dr. P. MANSON and seconded by Mr. CANTLIE and unanimously carried.

NAVY, ARMY, AND AMBULANCE.

FRIDAY, AUGUST 3RD.

The proceedings of this section were opened by the reading of a paper by Surgeon-General J. B. HAMILTON, A.M.S. (ret.), entitled

On the Past, Present, and Future of the Royal Army Medical Corps.

The difficulties and tribulations of the service in the past were briefly sketched and the various stages of progress and evolution of the service were step by step gone into till the present time. For the amelioration of the present difficulties the following propositions were put forward for consideration: that there should be an increase of pay and allowances to equal those of the combatant rank, especially in India; increase of the *personnel* both at home and abroad, so as to insure a fair amount of leave for private affairs and "study leave," full pay and allowances being granted during the "study leave," such as travelling, cost of courses, &c.; and general increase of pay, as the lack of men coming forward was due to the poor pay. He discussed the position of the principal medical officer on the staff of general officers, and the want of local and executive rank was dealt with, especially in the South African war. The position of Surgeon-General was anomalous; he should have the title of Major-General either in the Royal Army Medical Corps or on the staff of the army, the Colonel of the Royal Army Medical Corps being also on the staff of the army in the latter case. A commission should be appointed to take evidence and report on the causes of the dearth of men for the Army Medical Staff. The Secretary of State for War should state clearly what steps he proposed to take as regards increase of the service. Militia medical officers should be re-appointed, and, being well trained, would be a valuable reserve. Military titles should be granted to Volunteer medical officers. The Secretary of State for War should issue definite orders that warrants should not be tampered with but should be carried out as promulgated and not carried out in the letter and broken in the spirit.

Surgeon-General T. F. O'DWYER, Principal Medical Officer of the Aldershot District, said that the position of the principal medical officer was on the lines of communication. If the lines of communication were at all long then he was as likely as not to be at some distance from the staff of the general officer commanding. If he was actually on that staff he would be near headquarters, where he would be able to elicit what was going to happen beforehand and thus be able to make necessary arrangements. They could and ought to adopt those measures used in the German army. The principal medical officer ought to know in advance what was going forward so as to make arrangements to meet any results of military movements. The principal medical officer on the staff of all general officers should have a certain amount of executive power. Discipline, engineering, and supply were dealt with by special officers having executive powers, but in sanitary matters the principal medical officer had no such power.

Surgeon-Major T. F. S. CAVERHILL (Edinburgh) said that owing to the ruling of the General Medical Council on the matter of unqualified assistants there was a great demand for qualified men for the post of assistant and *locum tenent*. Unfortunately, the demand was greater than the supply, consequently it would become increasingly difficult to get men in future years for the army. The Government would have to deal with the matter as it was becoming a very pressing one. As regards leave it was a great necessity that ordinary as well as "study leave" should be got, for under present conditions at home and in India sufficient leave and rest were not obtainable. There ought to be formed a specially skilled sanitary body in the Royal Army Medical Corps as a sort of sanitary consultant department.

Surgeon-Captain J. HARPER, V.M.S.C., said that if the Volunteer Bill now before Parliament passed in its present form he would certainly resign his commission.

Surgeon-General HAMILTON, in reply, remarked that the Engineers on whom at present devolved many of the sanitary undertakings were miserably equipped as far as sanitary knowledge was concerned. The principal medical officer ought, as Surgeon-General O'Dwyer had said, to be at the elbow of the general officer commanding. The present system of separation was absurd, as the principal medical officer's opinion had to filter up to the general officer commanding through his staff officers. No volunteer surgeon making £1200 a year would leave his practice and income and go off to an isolated post or fort on a small salary. Reserve medical men would not come out if called upon for the same reason. Many of the reserve medical men kept on the War Office lists were mere physical cripples, some actually deaf or almost blind. He would have all reserve medical men examined every year in order to ascertain their physical efficiency. As regards sanitary matters he thought that the Medical Department did not have an adequate knowledge and training. The cheese-paring of the Treasury was the cause of the present difficulties.

Mr. CLINTON DENT (London), who has recently returned from South Africa, read a paper entitled

On Modern Small-bore Rifle Wounds,

a short abstract being as follows. So much had been written during the last few months on this subject that it was well-nigh impossible to break new ground. It might be of some service, however, if he endeavoured to summarise some of the conclusions that appeared to be justified by the evidence already collected. Broadly speaking, bullet-wounds of all kinds in the South African campaign had done well. Recoveries from very severe wounds had been numerous and many of these recoveries had been most remarkable. The percentage of wounded men who had been found fit to return to duty had been unusually high. Wounds inflicted causing permanent disability had been less frequent. Injuries the consequences and results of which necessitated amputation had been in proportion fewer than in previous wars. Conservative surgery had most properly been carried farther and with more successful results than in former campaigns. These satisfactory results had been ascribed mainly to the "humanity" of the modern small-bore bullets. He believed that the surgical healthiness of the climate of South Africa and the widespread employment of the "open-air" method of treatment had had quite as much to do in bringing about this most satisfactory state of affairs. Septic complications attacking either bullet or operation wounds had been very rare. The idea that the heating of the bullet had any influence was probably universally discarded. The heating effect was never seen even when bone was struck, for arrest of motion was possibly the mode of transformation of motor energy into heat, yet heat effects were not seen. Again, the bullet even if made white-hot by aerial friction passed far too rapidly through the tissues to have any cauterising effect. The "hydrodynamic" theory, as explaining the destructive effect of certain bullet wounds, had now few adherents. As instances of cases in which military surgery was now much more conservative than formerly might be cited perforating abdominal wounds, compound fractures, wounds of joints, and nerve injuries. All wounds did well, even shell wounds; the only joint wound which did not do well was that of the ankle. As instances of injuries in which surgery was now much more active were those of the head, which nearly all had to be and were operated on and with success.

Surgeon-General O'DWYER said that an important point settled by this campaign was that abdominal wounds made by small-bore high velocity bullets should not be operated

upon. Men wounded through the lung were subsequently to recovery liable to dyspnœa on exertion.

Surgeon-Major CAVERHILL called attention to the fact that Pirogoff in the Russo-Turkish war found that wounds of the ankle-joint did very badly and that in the American war all ankle-joint injuries were invariably fatal.

Surgeon-General H. S. MUIR, C.B., made a few remarks.

Surgeon-General HAMILTON related some experiments with Rifle-bullets on Mechanical Objects. He found that a long plank box filled with sawdust, at which an express bullet was fired was variously affected under different conditions. If the bullet was propelled by two drachms of powder the bullet went right through the box from end to end, sawdust and all; if, on the other hand, it was propelled by five drachms of powder it did not pass far into the sawdust. This was strange and he could only explain it by the fact that the larger charge of powder caused higher velocity and as velocity "set up" or deformed the bullet; the larger charge giving greater velocity, could not therefore cause such penetration as the smaller charge which did not deform the bullet so much. He also took a long iron-bound box, cut out a square at one end and replaced it by thick india-rubber, filled it with water and then fired a high velocity bullet through the rubber right through the box lengthwise. The result was that although the bullet was small the box was burst open in all directions. This probably would explain the fact that nerves were injured by Mauser bullets which had not gone near the injured nerve, the nerve being really damaged by the tensile rending strain of lateral centrifugal force. Spherical ball was more destructive than were conical small-bore bullets.

Mr. CLINTON DENT, in replying, stated that the only cases in which clothing was carried into bullet wounds was in the case of kilts worn by Scotch regiments. This was interesting, as perhaps the plication of the kilting tended to cause this. Nerves which were thought to be severed were found on operation to be intact, yet there were present symptoms of injury, as intense pain, paralysis of groups of muscles supplied, &c. There was no doubt that the bullet had not touched the nerve, for the pencil-tract of the bullet could be seen quite straight and away from the nerve. He related a case where the knee-joint was traversed by a bullet which also cut the popliteal artery. The man could not put on his field dressing, as every time he moved to do so he was made a target of, so he let matters take their course. The blood clotted in the sun, as the man believed; he was taken to the field hospital, moved down country in the train, over a long distance, to Wynberg Hospital, and it was not till he was there and had his wound dressed and his first dressing removed that the artery spurted, was promply cut down upon, and tied with success and recovery. Asked as to shell-wounds he stated that at Paardeberg there were not so many casualties amongst the Boers as expected from shell-fire, owing to Lord Roberts's humanity which caused the wagons only to be fired at, for the sake of the women and children, otherwise the results would have been different. At Modder River the Boer trenches were full of shrapnel bullets and they must have suffered there. He stated that at Paardeberg many dead Boers must have been cast into the river, for in a pool there the soldiers continued to drink the water till the pool ran dry and then they found two dead Boers at the bottom.

In the absence of Staff-Surgeon W. J. COLBORNE his paper entitled

On Infectious Disease on Board Ship

was read by one of the secretaries. The space allotted to sick on board ships of war was limited. Though limited, it was sufficient for all ordinary purposes, yet provision should be made for infectious disease, for observation, and for isolation. On visiting a port the medical officer should make inquiries as to the prevalence or absence of infectious diseases, the extent, and the district infected, in order to warn the men against visiting that district. The ship should remain in that port only according to circumstances and no longer. Persons visiting the ship, such as washerwomen, &c., should be carefully supervised. All minor ailments in that port occurring on board ship should be carefully watched and isolation practised when a case was doubtful; messmates as well as the sick man should be watched. A proper place for isolation must be found either below or above decks. The ventilation was important, as it should lead directly out above decks and not lend itself to the dissemination of infection between decks. All such ventilators should be stopped up. The patient and the attendant should not leave the apartments. Where no apartment could be found a portion of the deck should be totally screened off from deck to deck and the screen kept moist with perchloride of mercury solution, 1 in 1000. No intercourse of any sort should be allowed with the outside, not even for food. If the patient were landed to hospital the attendants, the boat, and the crew should be disinfected by appropriate means. When disinfecting after recovery or removal at least three pounds of sulphur to 1000 cubic feet of space must be burned. The screen should be soaked in 1 in 1000 perchloride solution. During an outbreak all men should be warned to report any slight ailment at once. In small-pox every man should be revaccinated. If feasible every infectious case, or even cases under observation, should be landed. By the above means epidemics on board ship could be easily limited and stamped out.

In connexion with this section was a loan collection of military medical equipment. In the lecture hall were a St. John Ambulance Association litter on wheels; an Ashford litter on wheels; a Furley stretcher; a Derham carrying sheet-stretcher specially designed to go through narrow doorways and into railway-trains, and to carry a patient sitting as well as lying; and a Bedford invalid jacket and ice-cradle. In the side recess there were a model mission hospital tent, as used in the United States Army; Mackenzie Davidson's x ray localiser and an x ray localising couch; a patent pneumatic ambulance hammock and camp bed; a set of surgical saddle-bags fitted up; a Burroughs and Wellcome Congo medicine chest; a Maw, Son, and Thompson medical valise; No. 1 and No. 2 field service equipment chests of wicker covered with hide for lightness; a St. John Ambulance service equipment; a Mauser and Lee-Metford rifle, with bandoliers and ammunition; fragments of shells and a one-pound shell from a Vickers-Maxim (Pom-Pom), which appeared insignificant in comparison with its terrible nerve-shaking effects in action. In the grounds was erected a "Tortoise" tent hospital. There was also an exhibit, with careful drawings, of soldiers' boots, their defects and remedies, by Mr. Noble Smith.

THE ANNUAL MUSEUM.

(*Continued from p. 519.*)

V.—MINERAL WATERS, BEVERAGES, &c.

The most interesting exhibits in this section were undoubtedly those connected with the natural mineral waters of our home health resorts. Foremost amongst these were the interesting collection of specimens of salts and models of baths from Harrogate, exhibited by the Harrogate Corporation. The feature of the Harrogate Spa is, of course, the sulphuretted hydrogen water which, we believe, holds its own in regard to its uniformity of composition, and especially in regard to the constant quantity of sulphuretted hydrogen gas which it contains. Specimen cases were shown containing the salts obtained by evaporation of several of the Harrogate waters. The efficacy of the Harrogate wells is well known. The Harrogate Corporation bottle their mineral waters both aerated and plain. The saline waters of the Royal Leamington Spa were also brought to the notice of the visitors. These natural mineral waters may be obtained plain, aerated, or concentrated. Special attention has been paid at Leamington in the direction of acquiring all the latest apparatus indicated in successful balneological practice. This includes rooms heated by electricity and radiant heat and light baths and hot-air baths. Many well-known continental natural mineral waters were exhibited by Messrs. Ingram and Royle of East Paul's Wharf, 26, Upper Thames-street, London, E.C. These included bottled specimens of the Vichy springs and of the waters of Carlsbad. This firm also are agents for the supply of the water, plain and aerated, of the remarkable barium spring at Llangammarch. The important constituent of this spring is chloride of barium, but associated with it also is chloride of calcium. These waters have come prominently forward recently as of value in rheumatic disorders. The waters are powerfully diuretic. The well-known natural aperient water which occurs abundantly in the wells near Budapest was shown on the stall of Andreas Saxlehner, London Agency, Trafalgar-buildings, Charing-cross, London, W.C. Hunyadi Janos, as it is called, exhibits an interesting and, it should be remarked, constant composition, the magnesium sulphates and sodium sulphates being in equal proportion. One of the

largest exhibits was that by the Apollinaris Co. of 4, Stratford-place, Oxford-street, London, W. Besides Apollinaris water this company also showed Johannis water, as well as specimens of the latter water with lithia and potash added. The exhibit included the bitter aperient waters of Friedrichshall and Apenta water. Several very interesting applications of "sparklets" to the instantaneous aeration of all liquids were shown by Aerators, Limited, of Broad-street-avenue, London, E.C. Amongst the novelties worthy of note were the tablets for the extemporaneous production of soda, potash, and other mineralised waters. Fruit powders are also prepared for the easy production of sparkling summer drinks. This neat little apparatus is most convenient in use and is an excellent travelling companion and offers the undoubted advantage that the consumer can select for himself the liquid he wishes to have aerated. In this section Condal water is worthy of mention, since it is distinguished from other aperient waters by containing as its mineral laxative almost exclusively sulphate of sodium. Magnesium sulphate also occurs, but not in important quantity, and common salt also is present to the extent of nearly one grain per ounce. Specimens of the bottled water were shown by the Condal Water, Limited, 38, Walbrook, London, E.C.

There were very few exhibits coming under the class of beverages. The exceptions were the lime-juice cordial and clarified lemon squash (Stowers's) exhibited by Alexander Riddle and Co. of 36 and 38, Commercial-street, London, E.; medicated wines, including coca wine, beef wine, and a special ferruginous burgundy, by Stephen Smith and Co., Limited, Malmesbury-road, Bow, London, E.; samples of Norfolk cider, the excellence of which we have already pointed out in our analytical columns, exhibited by Messrs. W. Gaymer and Sons, Attleborough, Norfolk; and the lime and lemon preparations and lemon squash and ginger-beer crystals of Messrs. Feltoe and Smith of 25, Augustus-street, Regent's Park, London, N.W. This section, as will be seen, shows a distinct falling off in the number of exhibits as compared with last year.

VI.—PUBLICATIONS, &c.

There was but a small representation of publishers this year. Messrs. Macmillan and Co. had a special selection of their publications dealing with medicine and surgery, foremost amongst them being the "System of Medicine" by Professor T. C. Allbutt, which is now completed by the publication of the eighth volume, and the "System of Gynæcology" edited by Professor Allbutt and Dr. W. S. Playfair. There were several typewriters shown, amongst them being the Blickensderfer machine (London Depot, 9, Cheapside, London, E.C.), and the "Oliver" typewriter (42, Poultry, London, E.C.). Lastly, Mr. B. Allsop of Shipley, Yorks, explained his A B C system of medical book-keeping which is well worth the attention of our readers.

In previous years we have generally devoted a final paragraph to the description of exhibits which we have classified as more or less of a miscellaneous character. On this occasion there were, practically speaking, no exhibits of this class to describe.

LONDON MISSION HOSPITAL, CHUNG-KING.—A medical branch of the London Missionary Society was started in Chung-King in West China on the Yangtse river in 1892, Chinese buildings being utilised for the purpose. A new building of three storeys to accommodate 80 patients was opened on Dec. 23rd, 1899, by Mr. F. A. Fraser, the British consul, the company including the consuls of France and the United States of America, Chinese officials, both civil and military, and many others. Mr. Fraser delivered an eloquent address in the course of which he remarked that the hospital was said to be the largest in China west of Shanghai. A general meeting was afterwards held in one of the wards, with the Rev. J. Wallace Wilson, chairman of the London Missionary District Committee, in the chair. The Rev. A. E. Claxton, secretary of the district committee, in a sketch of the operations of the society in Chung-King, spoke most highly of the work accomplished by Mr. Richard Wolfendale, the medical officer of the hospital, who came to the town in 1897, and to whose energy the erection of the new buildings was mainly due. The Rev. O. F. Hall, M.D., and Dr. Laville of the French army medical department also spoke.

THE THIRTEENTH INTERNATIONAL CONGRESS OF MEDICINE,

HELD AT PARIS, AUGUST 2ND—9TH, 1900.

THE day following the official close of the labours of the Congress showed little abatement either in the numbers of medical men remaining in Paris to visit the various picture-galleries and churches or in the numbers of those staying over to continue their professional labours at the different hospitals. In the Boulevard Diderot at the Hôpital Saint-Antoine from 60 to 70 members thronged the small wards and overflowed into the passages of the building set apart for the demonstration by Dr. Lermoyez to the Otological and Laryngological sections. So little was to be seen or heard by reason of the many members present in such a confined space that not a few betook themselves across the spacious grounds of the hospital to a large amphitheatre in the main building where over 100 medical men had assembled to hear Professor Hayem explain his work on the blood and detail his researches on diseases of the abdomen. Professor Hayem's teaching was rendered extremely interesting to those of his hearers who followed French with difficulty by reason of the excellent lantern slides exhibited in explanation of the lecture. Most of the clinics at the various hospitals in Paris were attended by large numbers of members, and especially was this the case at the clinic held by Professor Raymond at the Salpêtrière. To those unaccustomed to the more serious cases of hysteria the uncontrollable attacks exhibited by the patients in the small ward immediately adjoining Charcot's Museum must have been a revelation, for they surpassed in violence and extravagance any of the illustrations usually found in medical text-books. Dr. Pierre Marie's clinic at Bicêtre also attracted a large attendance, though it necessitated a short journey in order to be present—a disadvantage, however, which was amply compensated for, judging by the numbers of those who found their way to this centre for neurological work.

Mr. F. B. TURCK of Chicago gave a demonstration before a numerous audience of his methods for preventing the occurrence of shock and infection in the course of operative procedures. On this occasion the almost entire absence of any practical knowledge of the English language by the members of the Congress was rectified by the kindness of Dr. W. Ewart (London) and of Dr. Waters, who performed very efficiently the duties of interpreters for the Chicago surgeon, and it was due to their efforts that Mr. Turck's work received such an enthusiastic and appreciative reception in Pavillon No. 7 of the École Pratique.

It has been decided, as already stated in our columns, to hold the next International Congress of Medicine at Madrid in three years' time.

(FROM OUR SPECIAL CORRESPONDENT.)

To all inquiries concerning medical and surgical exhibits the officials of the International Medical Congress replied by referring members to the Paris Exhibition. Scattered over an immense area, and very often difficult to discover, even when some particular portion of an enormous building has with much labour successfully been found, the medical exhibits as a whole are completely lost in the huge show on the banks of the Seine. On the ground floor of the "Palais de la Ville de Paris" an old four-poster bed from the Hôtel de Dieu Hospital is displayed. It contains the effigies of four patients depicted as suffering from different maladies and looks as insanitary and repulsive as the splendid specimens of x-ray photographs of simple and compound fractures

shown in the same building look modern and scientific. The next building containing medical exhibits on the right bank of the Seine is the Palais des Congrès immediately before reaching the Pont de l'Alma, and here the section for Switzerland attracts notice, especially the specimens shown by Surgeon-Colonel Bircher demonstrating the effects of hand weapons of ancient times as contrasted with the results on the human body of modern fire-arms. According to this exhibit, which is extensive and well divided, prognosis in cases of severe wounds from shrapnel is far more serious than in cases of similar wounds inflicted by modern rifle fire. Before leaving the Palais des Congrès one notices in the part reserved for Italy the records of the successful work inaugurated by the assassinated King of Italy in providing night refuges for the sick and others in the streets of Rome. A dusty walk behind "Old Paris" and then beside the river past some curious weird-looking craft anchored under the pleasing legend of "Navigation de Plaisance" leads to the Trocadèro palace where Cuba shows a collection of sera from the laboratory of that colony. Further inquiry into this up-to-date exhibit is prevented by the absence of any card explaining where the laboratory is in Cuba that sends the sera. Passing across the Seine by the Pont d'Iéna and taking first the galleries on the right hand side of the Champ de Mars there is to be seen in the Austrian portion of the Palais des Sciences on the ground floor some excellent examples of boxes of instruments for laryngological examinations and for laryngological operations. Belgium is well to the fore with an interesting museum demonstrating Professor Politzer's work and containing wax models and anatomical preparations. In this part of the building are found numberless exhibits of instruments of all kinds without any order or scheme, the only reasonably arranged group being one to be seen in the American section where instruments and apparatus are classed together according to different operative procedures. Among the French sections is an excellent x-ray photograph of the skeleton of a female suffering from scoliosis taken on a single plate. Of the exhibits sent by Great Britain the French public seem to give most attention to the model of a naval hospital. The work of Jenner receives recognition in the Russian section, where a room is entirely devoted to vaccination and the bust of the great apostle of vaccine is placed in the centre. It is difficult to go through this building carefully without being struck with a very remarkable series of instantaneous photographs in the exhibit from the University of Nancy under the name of Professor Guilloz illustrating normal and pathological conditions of the retina. The section devoted to Hungary affords some noteworthy object lessons in the case of the blind and the best means of affording State aid to the poor thus afflicted. There is more information on the same and similar subjects to be gained in the portion of the building assigned to "l'Assistance publique et privée" on the first floor above the gallery for machinery. For anyone not well acquainted with the Exhibition it is advisable, in order to arrive at the next building where medical exhibits are shown, to ask the way to the Palais des Armées de Terre et de Mer. Here is a perfect storehouse of military and naval medical equipment, mostly, however, of well-known types. Norway sends a light, useful two-wheeled cart for the transport of wounded men which seems superior to most similar vehicles shown. A series of Russian photographs of the manufacture of military bandages claims some attention from the representation of the operators' headgear worn as a protection against noxious fumes. Among the objects in the French section in this building is a serviceable ambulance haversack containing compressed drugs representing 15,000 separate doses, some surgical instruments, and some antiseptic dressings. On the first floor in the Palais de l'Hygiène just before the Mexican exhibit is reached there are some forms of spectacles and other apparatus for the preservation of the eyesight in dangerous trades; these appear excellent in their object, but in some not enough attention has been paid to securing an ample field of vision. Below this section, on the ground floor, are a series of galleries which terminate in a fairly large room built in the form of an octagon, the centre of which is occupied by a piece of statuary representing Humanity placing with one hand a crown of laurels on the head of Pasteur and bearing aloft with the other hand a small palm leaf emblematic of glory. This production is the result of the conjoined effort of three artists, Dubois, Enderlin, and Blach, and fully merits the unstinted praise it receives. From four sides of this octagonal room, appropriately named "Salon Pasteur," access is obtained to chambers containing exhibits indicative of the results of Pasteur's influence among other nations than the French, and especial notice is given by the artistic observer to the allegorical figure of a Sphinx personifying the enigma of Science surmounting each of the four doorways. Near the bust of Pasteur are grouped the instruments with which he prosecuted his researches. This room with its four annexes is devoted to exhibits demonstrating the culture of microbes and the applications of the results of Pasteur's teaching. Passing on to the Rue des Nations in the Roumanian Pavilion there is to be seen an interesting album depicting bone lesions from military weapons collected by Professor Démosthène, and close by in the Monaco Pavilion is a very complete surgical exhibit named "l'instrumentation de Doyen." From a medical point of view the exhibits are of very unequal value and by reason of the utter want of any method or plan in the grouping of the subjects the attempt to make a satisfactory inspection is hopeless.

A VISIT TO SOME OF THE PARIS MUSEUMS.

(FROM A CORRESPONDENT.)

The Dupuytren Museum is situated in a courtyard off the the rue de l'École de Médecine, being the next building to that of the École Pratique. The fine front to this museum is quite spoilt by the narrowness of the somewhat mean yard by which entrance is effected, and the statue of Ambroise Paré by the museum doorway is thrown into greater prominence than is required artistically. The collection consists of over 8000 specimens bearing on pathological anatomy, all displayed in one large hall. The floor space is occupied by five immense glass partitions inconveniently crowded with preparations. Round the walls high glass cupboards are ranged, also filled to overflowing with specimens. The only available catalogue at the time of visiting this celebrated museum was a voluminous work in many volumes by Dr. Houel, but on attempting to form some idea of how the specimens were arranged it was found difficult to make the method detailed in the catalogue conform to the actual arrangement of the collection. From what could be understood of the courteous but extremely voluble explanation of the attendant in charge a new catalogue is in process of formation. It would be a great improvement if the more interesting specimens were arranged at such a height that they could be examined without having to look too high or too low for ordinary comfort. Passing through a door at the extreme end of this ancient hall the way can be found to a small room lined with pictures of medical subjects and from the floor of this chamber a rough staircase leads directly to a small upper room furnished with a couple of tables, a chair or two, and some cupboards. Many members of the Congress had inquired for this chamber because it contained over 10,000 microscopical sections by the late Professor Pilliet on histological subjects illustrating normal and comparative anatomy and pathological anatomy. These have been arranged by Dr. Legry, the present conservator, but unfortunately the collection was not ready for view till the last day of the Congress and only about 20 members had the privilege of seeing the exhibit. Passing through the Dupuytren Museum on the way out the attendant, in answer to inquiries, said that the museum was continually in receipt of fresh acquisitions, and he showed the last, which had arrived eight days before, namely, a large x ray photograph of a double-headed fœtus.

On the opposite side of the court of the Dupuytren Museum on the second floor of the École Pratique the Museum of Hygiene is to be found. The management of this collection seem stricken with want of funds, for it was evident that the exhibits were not quite up-to-date and that there were several gaps in the different departments of the science of hygiene.

In the École Pratique there was also to be seen a collection of over 3000 surgical instruments, both ancient and modern. These were formerly part of the celebrated Orfila Museum. The many inquirers concerning the famous Orfila Museum were generally referred to the École Pratique, and at that place the information gained was that the collection was in process of transference and was not on view.

At the Saint Louis Hospital much interest attached to the museum which has been there formed. The collection consists of over 2000 wax specimens comprising instances of parasitic and cutaneous diseases; most of the wax exhibits

have been modelled by Baretta. Besides the above there are on view more than 300 coloured photographs and diagrams which make the collection at this museum very valuable and instructive.

A small but exceedingly well-arranged museum at the Necker Hospital scarcely received the attention which it so well deserved. It is known at the Necker Hospital as Professor Guyon's museum, but the attendant in the room where the specimens are arranged denies that that is the name of the collection. Be that as it may, the specimens are from Professor Guyon's clinic and they number 680. In the right-hand corner of the room on entering are shown some very curious "foreign bodies" found in the bladders of various patients. The value of the exhibits from an educational point of view is much enhanced by an excellent and easily accessible catalogue where against a full description of each specimen is placed a full-sized photograph. The method of displaying the exhibits is very convenient and good examples are to be seen of the various diseases affecting the ureter, the prostate, the bladder, and the kidney.

Many members of the Congress accepted the invitation of Professor H. Filhol to visit the Museum of Natural History. By following the directions contained in the intimation the way was easily found to the Place Valhubert, the address given for the museum. The building is a handsome edifice of recent construction, and is specially seen to advantage because of the ample space in front and around securing a reasonable view of the institution as a whole. Passing up some steps the main floor of the museum is reached, and from the entrance hall access is gained to the different galleries by a well proportioned stairway. Professor Filhol found many attentive listeners on making his round of the museum, but to make more than a mere visit under the circumstances to such an extensive museum of natural history was impossible. Sixteen professors are engaged in teaching at this museum on comparative anatomy, zoology, physiology, anthropology, botany, and other subjects. On the right hand side on entering the vestibule to the museum, opposite the main staircase, most of the members of Congress who accepted Professor Filhol's invitation noticed a striking piece of statuary. An enormous orang-outang is shown in the act of strangling a man who has evidently endeavoured to carry off the young orang-outang by the side of its parent. The handling of the subject is most effective and is by Professor Frèmiet, one of the staff of the Museum. Visitors are shown the skin of the orang-outang, which was subsequently shot after a search party had found the man lying strangled in the animal's lair, from which he had attempted to secure the young orang-outang as a specimen. Considerable notice was attracted by the way in which the lecture-room at the side of the vestibule is adorned with paintings. The walls and the entire ceiling are covered with studies of the evolution of life and the progress of man. In one of those on the walls the subject depicted is a savage making acquaintance with a crab as an article of diet, and the artist has quite entered into the spirit of the occasion. At the Ricord Hospital there is a small collection of about 250 specimens of various venereal conditions. This museum was founded originally by Horteloup and is well worth a visit. Members of the Congress visiting the Trousseau Hospital had an opportunity of seeing a very valuable museum known as the Lannelongue Museum. The specimens exemplify various stages in osteo-myelitis, tuberculous disease of bone, tumours, and fractures. At the Salpêtrière Hospital there is a small museum in one of the buildings of this huge establishment and the many specimens prepared by Charcot rendered it a place of more than usual interest to many of the members of the Congress. The museum itself is a room of modest proportions on the first floor of a building that certainly cannot be termed new or recent. There is no ceiling, but the beams supporting the floor above are covered with various scenes and figures painted by some artist who has succeeded in giving to the chamber a very pleasant effect. There is no catalogue of the contents of the museum and the cards placed near the specimens require more than an ordinary knowledge of French caligraphy. In the centre of the apartment under a glass case is a wax model of a tabetic patient showing very plainly the condition known as Charcot's joint. Around the walls, arranged on shelves, are various specimens illustrating the effects of nervous disorders. A very interesting series of sketches and drawings by Charcot is displayed and it shows well what an appreciative eye for the picturesque and humorous the famous master had and how great a traveller he was, his rough drawings of the vagabond children in Dublin being especially spirited and lifelike.

THE TENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL CORRESPONDENT.)

THE BANQUET.

At the Auberge des Nations, in the Old Paris Street of the Exhibition, the subscription banquet of the Congress was held on August 14th. It was a brilliant and enjoyable gathering, but there is not much to relate as the speeches were few in number and brief. The cards for the dinner gave free admittance to the neighbouring theatre and the banquet concluded earlier than usual so as not to lose all the performance. As President of the Congress Dr. BROUARDEL took the chair and proposed the health of the President of the Republic as the first toast, coupling with it the sovereigns and chiefs of all the foreign States represented at the Congress. He recalled the fact that as Minister in a former Cabinet M. Loubet rendered great service in helping to pass the recent law on the exercise of medicine. M. Loubet also was very desirous of presiding over the Congress of Hygiene and had said that sanitary reformers were the greatest benefactors of humanity. In this the President of the Republic agreed with Mr. Disraeli who, as Prime Minister of Great Britain, had urged that the preservation of the health of the people should be the first duty of the Government. Professor GABRIEL spoke next. He alluded to the union of civilised nations in their efforts against the barbarism of China; but in defining the Chinese as barbarians the speaker was met with cries of "Oh! oh!" A German delegate drank to the sanitary reformers of France, saying that each civilised man had two countries, his own and France. This the Germans felt and the memory of the reception they had received in Paris would never be effaced from their hearts. M. DUPUY, on behalf of the Central Society of French Architects, drank to all foreign architects who had done such good work in adding sanitation as a constituent part of the art of building. This new doctrine would be taught to the young generation of architects and would constitute the ethics of building. Dr. LAURENT read out some verses which he had composed in honour of sanitary reform, mentioning the names of well-known hygienists and concluding with "the ladies." Dr. ANDREAS MAYER remarked that though war was not hygiene, the services rendered under the Red Cross could justly be considered as such and he drank to the ambulances on the field—"not omitting," interrupted Dr. HUIZINGA, "the members of the Red Cross Society who are prisoners at Ceylon." Dr. GREGOROWITCH, from the Canary Islands, drank to the prosperity of the town of Paris, and the members then adjourned to the Théâtre du Palais where they had a good laugh at a satirical review of some of the principal events of the year.

EXCURSION TO A MODEL FACTORY.

On Thursday afternoon, August 16th, more than 300 members of the Congress were conveyed by a special train to Noisiel. By a branch line the train was driven right up to the great Ménier chocolate factory. Here some 800 women and 1200 men produce annually 64,000,000 kilogrammes of chocolate. This is considered a model establishment from the sanitary and social point of view. The factory is carefully ventilated throughout, there is ample space, there is no crowding together of the workpeople, and the machinery is well protected to prevent accidents. The only part which is not up-to-date is an outbuilding where the wood is sawn and prepared for the making of packing-cases; here there is too much wood-dust in the atmosphere. The village of Noisiel consists of 300 semi-detached cottages with 300 square metres of space to each cottage; of this the building occupies 64 square metres and the rest is a garden. Each cottage, not counting the land, cost £165 and is let to the workpeople for £6 a year. Further, there are coöperative stores and a restaurant. At the latter hot meals are provided at cost price and a good portion of meat can

be obtained for 2*d*., and a complete meal, including wine for 8*d*. Then there are schools where the children of the workpeople obtain their primary education free from all cost. There are also a free library and a hall for concerts and entertainments. The workpeople have constituted a band and choir of 100 musicians. The services of a medical practitioner, of a midwife, and of a dispensing chemist are paid for by the firm and rendered gratuitously to the workpeople. The firm also make sick allowances in money and in kind. The men who have been in their service for six years receive annual gratuities of £2 8*s*. After 10 years' service this is augmented to £4, after 15 years to £6, and after 20 years to £8. The women receive half this amount and there is a free home for the aged and infirm. Messieurs Ménier have also created a fire brigade of 45 men, provided with uniforms, horses, hand and steam fire pumps, and all that is necessary. This brigade is at the service of all the neighbourhood and not only of those who are connected with the chocolate works. The drainage of the village is organised on the English water-carriage system. There are no cesspools. The sewage is delivered into a large hermetically closed tank, from which it is pumped in sealed pipes to a distance of one and a half miles away from habitations and here it is utilised for agricultural purposes. The workpeople, needless to say, are exceptionally contented; there is never any question of a strike. At the last general election, of the 349 electors in the village of Noisiel 343 voted for M. Ménier. After visiting the factory, the village, and all its institutions, the members of the Congress were conducted over the park and mansion of Noisiel, where they admired the splendid trees, the view of the Marne, and the antique furniture within the mansion. Finally, an excellent meal was served in a large hall, followed by a few short and complimentary speeches. M. MÉNIER then explained that hygiene had always been studied at Noisiel. They commenced with the hygiene of the school, then of the artisans' dwellings, and finally of the factory. They hoped by this means to bring up a healthy and contented population of good citizens. While the meal proceeded the band and chorus of the village gave selections, concluding with the "Marseillaise." This served as the signal of departure. The special train was in waiting and the members of the Congress were brought back to Paris punctually at the hour indicated. The organisation throughout had been perfect: there was no hitch, no discomfort. The members on arriving had been divided into bands of 50, a member of the firm conducting each band and giving all the information required. There were also arrows at all the turnings, so that those who strayed from their guide were yet able to find their way, and no collision could occur between people endeavouring to go in different directions. It is a pity that M. Ménier was not consulted on the organisation of the great fête given to the Medical Congress at the Palace of the Luxembourg, where several hundred guests were unable to gain admittance.

THE LAST GENERAL MEETING.

On Friday morning, August 17th, there was a long adjournment after the meetings of the sections. These concluded their labours between 11 and 12 o'clock, the section on Microbiology dying hard, for they continued to discuss ardently when the members of the other sections were already enjoying cigarettes in the yard. The International Committee was to meet at two o'clock, but the Congress as a whole was to assemble only at five o'clock for the closing ceremony. The International Committee had a great deal of work to do. Not only had they to decide where the next Congress should meet, but they had to take into consideration the resolutions passed in all the sections and select those which might be submitted to the Congress as a whole. Thus, while the members took matters leisurely, the committee had to work very hard. At five o'clock the great amphitheatre of the École de Médecine was entirely filled by the members of the Congress. The President, Dr. BROUARDEL, explained that the motions which would be read out had been fully discussed in the sections and that it would be quite impossible to discuss them over again. All that the present general assembly of the entire Congress could do was to vote for or against the motions. The general secretary, Dr. A. J. MARTIN, then read out the motions. There was no discussion or dissension and they were all unanimously approved.

THE RESOLUTIONS ADOPTED.

Commencing with the First Section and concluding with the Division of Demography the principal resolutions were briefly to the following effect. The Congress was of opinion—

That it was absolutely necessary for the authorities in all countries to establish bacteriological laboratories where bacteriological examinations could be made gratuitously.

That no children who had suffered from diphtheria should be allowed to return to school till it was shown, by bacteriological examination, that there was no longer any risk of their spreading the disease.

That there should be an international commission to study the question of serums and to endeavour to establish uniformity in the activity of serums.

This latter resolution was taken only as a recommendation so as not to tie the hands of the next Congress.

That the progress accomplished in the methods of vaccination was so great that no objection was justifiable and therefore that vaccination should be rendered obligatory in all countries.

That all tins containing preserved meat, fish, &c., should bear the date of their manufacture; and that rules for the preservation of food in tins should be published and distributed among all persons engaged in the trade.

That no chemical should be employed for the preservation of food.

That better laws or laws better applied are needed for the preservation of rivers from industrial and other pollution, and also for the preservation of the intakes of potable water.

That a commission should be appointed for the purpose of endeavouring to assimilate the methods employed in the bacteriological examination of water used for drinking purposes.

This latter resolution again was taken as a recommendation to the organisers of the next Congress.

That the inspection of meat should be enforced and the methods of control assimilated in all countries. It was recommended that an international conference of veterinary surgeons and others should meet for this purpose and also so as to establish a basis for uniform teaching in all countries as to the methods of controlling the meat-supply.

That there should be public slaughter-houses in all large centres. That small centres should federate so as to have one public slaughter-house between them.

That where it was absolutely impossible to have a public slaughter-house the killing in private slaughter-houses should only take place at fixed hours and should be under the control of the local authorities.

That inferior but wholesome meat might only be sold in especially indicated localities; and inspectors should have the right to visit all such places both day and night.

That lead be replaced by antimony in the proportion of from two to five per cent. and that the soldering of tins containing preserves with lead could only be sanctioned when done in such a manner as to prevent the lead entering the tin.

That domestic hygiene necessitated the immediate removal of all soil, slop water, &c., and the trapping of all pipes. That such pipes should be fully ventilated throughout, but that it should be impossible for sewer air to enter the houses.

That plumbers' work should be carefully supervised and so placed as to be free from the danger of frost.

That the overcrowding of dwellings should be illegal and the law should sanction police measures against this offence.

That municipalities should, by reducing taxation and other means, encourage the building of model artisan dwellings.

That gratuitous bathing establishments should be constructed.

That streets and back yards should be widened on all possible occasions.

That professional diplomas should be delivered to plumbers who had passed test examinations.

That smoke, especially black smoke, should be prevented by enforcing the use of smoke-consuming processes.

That hygiene should be taught in primary and secondary schools and special care be taken to educate young girls in matters affecting domestic hygiene.

That the Congress approved and encouraged the practice of cremation.

That statistics on the effect of various industries on the health of workers should be collected in all countries.

That the laws restricting the employment of toxic substances for industrial purposes should be strengthened and better measures taken to prevent dust in mills and factories, and this even when such dust did not contain poisonous particles. Where, however, efficient ventilation was not possible the work-people should be made to wear masks, spectacles, &c. In all cases notices should be put up clearly indicating the dangers and the precautions that should be taken.

That the Congress approved of all laws that enforced the providing of seats for the use of shop assistants.

That there should be schools for the teaching of colonial hygiene.

That sanatoriums should be established in the colonies.

That there should be available means for the gratuitous treatment of syphilis.

That ships trading with countries where plague prevailed should be provided with the anti-plague serum.

That ships' surgeons should be independent of ship-owners.

That the number of ships' surgeons should be increased and more care taken to insure good sanitation on board ship.

That no person suffering from an infectious disease should be allowed to travel in a train. Such persons should warn the station-master and special trains should be provided.

That railway carriages should be more suitably furnished and more easy to disinfect.

That all possible means should be taken to prevent spitting in carriages or at railway stations. Any railway servant suffering from tuberculosis must not be allowed to expectorate in the offices or stations.

That severe measures should be taken against railway servants who are convicted of drunkenness.

That better and brighter lights are required for the railway services.

That water and steam are the best mediums for heating railway carriages.

That conductors of omnibuses, tramways, &c., have not the power to prevent expectoration within these vehicles but that some means should be found to stop such practices.

That an international committee should strive to agree upon a uniform method of disinfecting cattle vans.

That passenger ships should be better ventilated.

The Division of Demography sent up a resolution to the effect that all countries should collect statistics setting forth the numbers of the population in proportion to the house accommodation. An international committee should agree on the same definitions when describing the quality or the category of a dwelling or lodging. Inhabitants of barracks, convents, schools, hospitals, and such places should not be included in the statistics of the population of dwelling houses but should be given in separate tables.

As this concluded the list of resolutions M. VAILLANT, member of the National Assembly, rose and remarked that the resolutions carried in the Fifth Section on Industrial Hygiene had not been presented to the Congress. These resolutions, it could not be denied, had a political and economic bearing, but they had not been discussed from such points of view. They had only sought to indicate the hygienic reasons which rendered labour legislation necessary. It had been said that they would excite discussion. Perhaps future Congresses would be less timid and the present Congress would have honoured itself by taking in hand a subject which was of undoubted importance and urgency. The section in any case had been unanimous and M. Vaillant was anxious that what it had done should not be concealed and that future Congresses should have full opportunity of continuing the work of the fifth section. These words were loudly applauded. Dr. BROUARDEL rose to explain that the International Committee had every sympathy with the work done by the Fifth Section, but that the resolutions carried touched too much upon the constitutions of other nations. All the resolutions carried by the Fifth Section would be printed and transmitted to the next Congress.

THE CLOSURE AND NEXT PLACE OF MEETING.

Dr. PUTZEYS, delegate of the Belgian Government, now stood forward with an official invitation that the next International Congress should be held at Brussels in three years time. A quarter of a century would then have elapsed since the first of the present series of International Congresses of Hygiene met in Brussels; and 50 years previously the first international congress on health questions that was ever held likewise met at Brussels. The Belgians were proud of these dates and would spare no effort to receive the Congress in a hearty and worthy manner. The Congress without discussion unanimously accepted the invitation.

Dr. BROUARDEL then pronounced a short and concluding address. He said that he thought the Congress was remarkable for the number of questions which had been very systematically discussed and the precision of the resolutions adopted. So thorough had been the discussions that the resolutions were generally carried unanimously. The French sanitary reformers would be much strengthened in being able to point to the approval of foreign hygienists when claiming reforms. But what was true for a nation was often true for all nations and he hoped that the resolutions carried at the Paris Congress would help on the cause of sanitary reform in many other countries.

Instead of allowing a delegate from each nationality to express his thanks for the reception accorded a collective declaration from the official delegates of all the foreign countries was read out. In suitable terms it expressed regret at parting after having been so graciously received in the splendid capital which was now rendered illustrious by the presence of the works of genius of the whole world. In leaving, the foreign delegates tendered their best wishes for the prosperity of the French nation.

After these words the PRESIDENT declared the Congress closed and with much shaking of hands and friendly leave-taking the members slowly dispersed. The Academy of Medicine, which for some weeks had been the scene of so much animation and the gathering ground of a numerous cosmopolitan crowd, lapsed into mournful silence.

THE WORK OF THE SECTIONS.

RIVER POLLUTION.

A full account of the papers read and the discussions held in the eight sections would constitute a weighty volume, which, indeed, we are promised will shortly be published. All I can now attempt is to give an account of the discussions which I was personally able to attend and a brief description of some of the more interesting papers communicated to the other sections. Nor was it an easy matter to select which of the sections to attend. They all had attractive programmes. Still, it seemed to me necessary to make a clear line of demarcation between the new science of hygiene and the old well-established sciences, and to take up those subjects which do not form part (as a rule) of the ordinary medical education. In England we speak of sanitation rather than of hygiene, and the third section was entitled in French *Salubrité*. This term comprises the greater number of questions that would come under the British term sanitation. Here we find illustrations of the new science, which is a combination of medicine, bacteriology, chemistry, engineering, and architecture, with a little agriculture and geology thrown in, not to mention that form of politics which, independently of party politics, strives to obtain legislative and administrative reforms bearing on the preservation of public health. To be proficient in all these departments of technical knowledge is, it may be said, beyond the powers of any one individual, and, as a matter of fact, the speeches often displayed ignorance in one direction and knowledge in another. Thus there was a constant give and take which must prove advantageous to all concerned. It was on Saturday, August 11th, that shortly after nine in the morning the work of the sections began. The first report taken in the Third Section dealt with the treatment of sewage and the pollution of rivers. It was written by M. FELIX LAUNAY, chief engineer of the Sanitary Department of the Paris municipality. Of course, the reporter did not fail to quote the English Rivers Pollution Prevention Act, but he seemed to think that this law was much more strictly applied than is really the case. Nevertheless, he was right in saying that more had been done in England in this respect than in France. Considerable evil had resulted from the belief that rivers were capable of purifying the sewage they received. Pettenkofer had shown that the sewage of Munich was purified by the river Isar; but, as Duclaux observes, a river must be in proportion to the discharge of sewage, and that was rarely the case. Pettenkofer had laid down as a principle that crude sewage could be thrown into a river when at low water there was a dilution of 1 in 15; when the velocity of the water in the river was not more rapid than the current of the river and when there was no agglomeration of dwellings between the sewage outfall and the point of the river where the purification of the sewage was accomplished. But the Sanitary Bureau of the State of Massachusetts put the proportion of dilution down at from 1 in 40 to 1 in 130. The real fact was that the nature of sewage and of rivers differed so extensively that no general rule could be established; and the rule which was the safest and applied to most cases was that which forbids the discharging of any crude sewage into the rivers. French legislation sought especially to preserve the fish in the rivers and the town of Paris had been fined some £4000 for the destruction of fish. This, however, was but a trifle out of an annual expenditure amounting to some £12,000,000; and if some £1,600,000 had now been spent to put an end to such pollution this had not been done through fear of small fines. These great works were undertaken because the utilisation of sewage for agricultural purposes was recognised as the best process of purification. This principle was proclaimed at the International Congresses of Hygiene held in Vienna in 1887, in Paris in 1889, in London in 1891, and in Budapest in 1894. It was also admitted at the International Congress of Agriculture which met at Lausanne in 1898 and confirmed by the same agricultural congress when it came together again in Paris last month. Where, however, there was no suitable soil artificial means must be employed and the Dibdin process or the Cameron process seemed to give the best promise of success. In one way or another it was now possible to prevent the pollution of rivers. The report then proceeded to deal with the protection of gathering grounds for the supply of potable waters and concluded that on this also more stringent laws were required.

WATER FROM THE CHALK.

On the discussion being thrown open Dr. HENROT, Mayor of Rheims, stated that the sewage farms of that town now extended over 600 hectares; for ten years the irrigation had never stopped, there had been no complaint, and the soil was never clogged up. It was regrettable that after the success achieved with this process, both at Paris and Rheims, no

other town had followed this example. This he thought was due to political considerations. Persons in power were afraid of compromising their political popularity, therefore the law should compel them to act. Dr. Henrot urged that there ought to be a Bureau d'Hygiene for each county to exercise pressure on the smaller local authorities and to depute technicians to advise the latter. At Rheims the most satisfactory results were attained by the cultivation of beet-roots with which they manufactured a large quantity of alcohol.

M. BERENGER, a Belgian delegate, now gave the discussion a turn in quite a different direction. He seemed to denounce the general incompetence of everybody. He said that engineers who had distinguished themselves in building an iron bridge or a railway line were employed to supply water to a town. Local authorities did not seem to understand that there were totally distinct branches of engineering. He maintained that no one should touch the question of water-supply who had not a profound knowledge of geology. He did not believe that water derived from the chalk was always safe. If there were fine soil and gravel on the surface of the chalk then the water might be sufficiently filtered; otherwise fissures were likely to occur in the chalk which would let unfiltered water through. He looked upon sanitary engineering as a science in itself for which there should be special examinations and diplomas.

M. BECHMANN, chief engineer of the town of Paris and President of the Section, replied that if water taken from the chalk was to be condemned, then many countries would be absolutely deprived of water. On the contrary, sewage used to irrigate land had, after filtering through calcareous soil, been perfectly purified. The microbes in such sewage, which amounted to 20,000,000 per cubic centimetre, had been reduced to 1200 per cubic centimetre.

M. LAUNAY inquired whether Brussels did not derive its water-supply from the chalk and if there had been any epidemic?

The answer given by M. BECHMANN to the former question was in the affirmative, and he said that there had not yet been any epidemic. Medical men and others had visited the gathering grounds and found them magnificent, but they had no geologists with them and the Brussels Geological Society had condemned the present intake.

M. DE MONTRICHET, whose great work in cultivating the arid, rocky plain of La Crau with the contents of the Marseilles dust-bins was subsequently described to the section, remarked that the report before the section advocated certain doctrines and methods which, however excellent, could not be accepted as infallible dogmas.

Dr. LANDE of Bordeaux supported this objection, for the throwing of sewage on the soil was not always practicable.

M. BECHMANN promptly explained that there was no desire whatsoever to impose a hard and fast rule. The utilisation of sewage on the land was considered preferable where it was practicable, and of course there were many places where this was not possible.

Referring, again, to the question of the pollution of rivers a Russian and a Belgian delegate both declared that laws existed in their countries against such pollution but that they were totally disregarded. The PRESIDENT thought the section should avoid details in its resolutions. The reports were historical records of what had been done and if the conclusions or resolutions at the end of such reports were adopted it did not mean that the section endorsed the entire report. In the present case it would suffice to affirm that the section thought it the duty of all Governments to enact laws and apply efficacious measures to prevent the pollution of rivers and to protect from contamination the gathering grounds or intakes for potable waters. This proposal was unanimously approved.

SANITARY LABOUR LEGISLATION.

Satisfied with this solution I then went over to the Fifth Section, which I found had been discussing M. EDOUARD VAILLANT'S paper on Labour Legislation from the Sanitary Point of View. M. Vaillant is a member of the French Parliament and also a Member of the Royal College of Surgeons of England. In his lengthy report he strove to explain how the working classes had by organisation obtained better sanitary conditions, that hygiene touched almost every phase of human activity, and that the object of the sanitary reformer was to see that such activity did not degrade and ruin the human race. When the constitution of a healthy man broke down at the age of 40 or 45 years there the sanitary conditions must be bad and the law should interfere. Such premature decadence was a modern evil; it was due to modern industrialism; it commenced by separating the infant from the mothers, who went to work in a mill or factory, and continued through various phases of the worker's existence. Historians, novelists, travellers, and hygienists all agreed that there was a marked physical degeneration among the populations of many industrial centres. This had been noticed since the commencement of the century and the first efforts of legislature had been directed to the protection of childhood. So far back as 1802 an English law made it illegal for children to work at night and limited their day's work to 12 hours. M. Vaillant then reviewed the subsequent labour legislation of England and other countries. He also quoted statistics as to the number of recruits in different countries who were found physically unfit for military service, all tending to show that the factory and the mill, and, generally speaking, modern methods of work, tended to degrade the physique of the nations concerned. Physiological researches, M. Vaillant insisted, indicated that over-exhaustion could not be compensated by the normal food and rest. When the muscles were tired further work was only accomplished by nerve energy; and after the borrowing of nerve force for muscular effort the reaction was far more destructive of vitality. The hygienist should seek to determine for each trade or industry the physiological limit of effort beyond which it was detrimental to go. This seemed difficult because the powers of individuals varied extensively. But it was not difficult to distinguish between the healthy and unhealthy, the normal and abnormal, and exceptions to the rule must be made for the latter. The robust worker harnessed to the wheel of Pettenkofer and Voit showed how much, in spite of rest and food, he had in nine hours exceeded the limit of his strength. Many instances were given and authorities quoted in M. Vaillant's paper to prove that it was possible to ascertain when a person had worked beyond his strength. Such excess of work produced an auto-intoxication by carbonic acid accumulated through excessive muscular endeavour and was more than the lungs had the power to eliminate. Practically the ideal was that rest should be sufficient to ensure that the work done should be done without producing any marked, distinct symptom of fatigue. Therefore it did not in all cases suffice to reduce the hours of labour. If the strain was to be augmented and the same amount of exhaustion produced but in a shorter time the evil consequences might be as great. The healthy and normal day's work was that which did not upset the equilibrium of the organism and which did not necessitate any borrowing on the reserves of strength, heat, oxygen, &c. The quantity of energy disposable would decrease where the sanitation was bad, where the factory and home were dirty and insufficiently ventilated, and where the food, clothing, and rest were insufficient. The better the general sanitary condition the greater the amount of work that could be done without injury to the worker. A human being should be treated with at least the same consideration as was shown towards an engine or other machine and not worked to the point of self-destruction. Unfortunately it was easier to replace a workman than to purchase a new machine. The records of the sweating system showed that machinery had never been so badly treated as human beings had been. To protect human life there were laws limiting the hours of labour, but this was of little use if overtime was allowed. Nor was this legislation effective where the sweating system was carried on in private dwellings that escaped all control. The French Decrees of March 2nd and 24th, 1848, the resolution of the English House of Commons of Feb. 13th, 1891, were endeavours to abolish the sweating system; but till domestic and family industry were placed under control sweating would continue. The more advanced legislatures already excluded women from dangerous industries, and all hygienists agreed that women about to become mothers should not work. Progress had already been accomplished in raising the age at which children might be employed, and it was very generally felt that the organs were not sufficiently formed to permit hard work till the child had reached the age of 16 years. Even at 16 years the organs of the thorax, especially the heart, were not fully developed, and no exhausting work should be allowed at that age. The object should be to prepare the mind and body by technical and physical education. After

reviewing the laws of different countries that restricted the work of women and children M. Vaillant proceeded to explain that even these partial reforms had greatly reduced the sick-rate and the death-rate, and concluded by recalling the fact that after discussing the interesting report written by Dr. Félix, Dr. Roth, and Dr. Singer, the Nineteenth Section of the Eighth International Congress of Hygiene, which met at Budapest in 1894, unanimously adopted a resolution in favour of the eight hours' day. He therefore proposed that the present Congress should confirm this resolution and this was approved by the section.

Then followed no less than 15 other resolutions. Certainly these could only be considered as mere enunciations of principles. For the moment many of them were beyond the domain of practical politics. The second one certainly went to the very root of the whole question, for it stated that labour should not only be limited in its intensity and duration, but that it should be remunerated in such a manner as to ensure sufficient well-being. How this was to be done was not stated, but as a matter of logic the resolution was absolutely correct, for good sanitation and short hours would not compensate for the want of food. The section also voted in favour of an uninterrupted rest of 36 hours per week.

To the resolution that night labour for women and children should be abolished the section added the words "without exception," for such laws did exist in several countries, but so many exceptions were made that they were of little use. The seventh resolution was to the effect that night labour for men should only be tolerated in those industries where its suppression was economically not yet possible. The eighth proposal that women should not work for six weeks before and six weeks after their confinement was amended to two months. The ninth motion, raising the age of children working in factories, &c., to 16 years of age, met with some opposition. In France the boys left school at 13 years of age—they had better work than get into mischief playing in the streets. To this the reply came that there would be reforms in the education system and that these boys might go from the primary school to the technical schools. This was carried, as also the next proposal stating that the work of children or young persons should not last longer than half the time worked by adults. Again, the question was asked whether they were to have the children six hours in the workshop and then six hours in the street. The fact, however, that children might get into mischief when playing in the streets did not prove that it was wholesome for them to work all day in a factory. The section proceeded to recommend that every possible legal measure should be adopted to prevent overwork by means of the sweating system, home work, or overtime. Therefore, medical men, hygienists, engineers, and working-men delegates should be appointed as inspectors with right of entry not only in all mills and factories but in private houses and rooms where work was done. Medical surveillance should be especially strict in regard to children, young persons, and women. The fourteenth resolution recommended the teaching of hygiene in primary schools and the fifteenth urged that physiological laboratories should be established in the universities of all countries to investigate the physiological conditions of the creation, and the expenditure and the regeneration, of energy in animated motors and more especially in man. By the institution of an international bureau dealing with labour, sanitary, and statistical questions, and by periodical international congresses, the Governments would facilitate the solution of the problems at issue, and by international legislature ensure the loyal observation of the principles and rules adopted.

Such, in rather briefer terms than the actual text, were the formidable array of resolutions which this section adopted. It has been seen that these resolutions were not submitted to the Congress as a whole when it assembled for the closing ceremony and that M. Vaillant protested against this exclusion; but the resolutions will be printed in the official records and transmitted to the next congress. The weak side of this discussion rests in the fact that a sectional meeting is attended, in the main, by sympathisers who are partisans of the object held in view. Therefore, there is little or no opposition. It would have been more effective and convincing to have carried propositions such as the above in face of a strenuous and able opposition. It could not then be said that both sides of the question had not been heard. This would undoubtedly have occurred had the Congress as a whole been able to discuss the resolutions which the Fifth Section had carried, and it was very frankly admitted that it was just because such discussion would have arisen that the resolutions were not presented to the general assembly. Perhaps at Brussels in three years' time these topics will have further ripened and there will be less timidity shown in handling them.

(To be continued.)

Correspondence.

"Audi alteram partem."

PROFESSIONAL ORGANISATIONS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 18th, p. 475, prominence is given to the question of professional organisations by the insertion in a place of honour of an address on that subject by Dr. W. G. Dickinson. Dr. Dickinson quotes with evident approval an article on the British Medical Association by an unnamed author to this effect: "No member of the profession has a right to say that he takes no interest in what are called 'medical politics,' by which we understand the maintenance of the honour and interests of the medical profession and the consolidation and extension of its influence on public opinion," &c. The *propriety* of such objects will be conceded by most of us, but it is worthy of inquiry whether the methods we adopt are not sometimes more calculated to defeat than to achieve them. Small local organisations form (and act upon) sweeping rules affecting many persons both in and out of the profession, but at the same time, rules which might be much modified and improved if subjected to a tribunal above mere local, and possibly very narrow, considerations.

There is, in my opinion, a real need that some central authoritative body, representative of the profession, should have an opportunity of considering the rules of local organisations and approving them—if worthy of approval—before they become, to all intents and purposes, laws. I will illustrate these remarks by a description of our methods in Great Yarmouth, methods I am ashamed to state I have, up to the present, acquiesced in. Five years ago we formed a branch of the Incorporated Medical Practitioners' Association on the occasion of a rupture between ourselves and certain working men's clubs. We had proposed fresh rules to the clubs. The clubs very ungraciously refused even to discuss them with us, dismissed us from our appointments (as indeed they were entitled to), and proceeded to form an Institute. By advertisement in lay papers they obtained two qualified men, one of whom is in office with them still. We then—by way, I suppose, "of upholding the honour and dignity of the profession and consolidating and extending its influence upon public opinion"—proceeded to boycott the Institute and its medical officers—the latter by social and professional ostracism, the former (and this is by far the most serious aspect of the case) by refusing to see them in consultation with their Institute medical officers, however ill they might be. Practically our attitude to the Institute patient was this: "You may suffer or die before we will come to your help so long as you are attended by your Institute doctor." We went still further, for when the friends of Institute patients, failing to get help in Yarmouth, appealed to Norwich consultants we brought pressure to bear upon these consultants, and stopped them. I will provide names and particulars of both patients and medical officers if required. And at our last meeting our secretary avowed his intention of preventing any London consultant meeting an Institute medical officer in consultation over an Institute patient if he could. It would be interesting to ascertain the view the London consultants take of the matter.

Surely, Sirs, our methods require revision. The public ridicule them, the interests of the profession are not served, bad blood is created between the Institute patient and the general practitioner, and the breach is widened. It is true that our society contemplates taking the club patient from his Institute medical officer altogether and treating him for

nothing when he is dissatisfied with his club medical officer, but I fail to see the advantage of either pauperising or bribing him. So far as boycotting is concerned let us leave it to trade unions. We profess to be an honourable learned profession, let us not plant our dig so low as we do when we condescend to such vulgar methods as boycotting. Let us have a central representative body; if it endorses our methods loyalty to our profession will ensure general adhesion to them. But when a mere handful of medical men in a provincial town make punitive regulations without supervision by a superior authority there must be a serious danger of injuring the honour and interests of the profession and the respect we aspire to in the eyes of the general public. I am, Sirs, yours faithfully,

JAMES RYLEY, M.D. Lond.

Great Yarmouth, August 20th, 1900.

"THE COVENTRY DISPENSARY."

To the Editors of THE LANCET.

SIRS,—I notice in THE LANCET of August 18th Dr. Saundby challenges the veracity of your special correspondent, Mr. Adolphe Smith, and as far as Coventry is concerned I should like to call Dr. Saundby's attention to Mr. Smith's investigations into the abuses of the Coventry Dispensary which were printed in THE LANCET some three or four years ago. If Dr. Saundby had taken the trouble to have read these reports, culled from the local press and the practitioners in Coventry, those on the dispensary staff included, he would have recognised that the statements bore the imprint of truth and that the reports in question were masterly *résumés* of the whole situation.

Dr. Saundby says "that he had never been asked to support the profession in Coventry," and "no request had been brought before any of the medical societies for assistance." In reply to this I would remind him that some five years ago I called upon him and laid the whole question of the Coventry Dispensary before him, and he promised to help in whatever way he could. I would also remind him that within a few weeks of this interview Mr. Faulder White and Dr. Callaghan of Coventry called upon him and again explained the situation and asked for his assistance. Of course, these are very small matters and perhaps do not affect the points at issue, but I thought it better to refresh Dr. Saundby's mind upon them. Then again, as regards the request to the medical societies, Dr. Saundby has again forgotten that this question has been referred to the Ethical Branch of the Birmingham District, which condemned the dispensary in the strongest terms. Surely this fact should not be lost sight of. Then as to whether these dispensary medical officers are ostracised in Coventry I can only tell you that some of us will not meet them in consultation at all, and others only upon exceptional cases. I might state here that a rule exists at this dispensary that if a consultation be required one of the members of the staff must be called in or a practitioner from another town, but not a practitioner in Coventry.

In 1892 this dispensary, according to published reports, had 25,000 people on its books out of a population of 52,000. I mention this because I have always maintained that if these medical men refused to meet us in consultation upon dispensary cases—i.e., half the population of the town—we should in like manner refuse to meet them in consultation upon the other half, and to this understanding many of us have adhered. I have instances, and can mention names, where dispensary patients from this town have paid 10, 15, and 25 guineas to Birmingham consultants. Surely it is time that a wage-limit at this institution should be insisted upon.

Your readers no doubt will understand from these remarks that this Coventry Dispensary question is far too wide for the intelligence of men who receive consultation fees from the medical men upon its staff, but it should be sufficient for these consultants to understand that an institution should not be countenanced which had been condemned at two annual meetings of the British Medical Association, by the Ethical Branch, and more perhaps by the condemnation of the medical press (THE LANCET, the *British Medical Journal*, and the *General Practitioner*), all of which refuse advertisements for vacancies upon its staff. If after these condemnations men in neighbouring towns would have sufficient *esprit de corps* to refuse to meet these medical men in consultation the reforms asked for at the dispensary would follow as a natural sequence.

I am, Sirs, yours faithfully,

Coventry, August 21st, 1900. EDWARD PHILLIPS.

To the Editors of THE LANCET.

SIRS,—I regret very much that you have replied to my letter by such a harsh note. It is as easy as it is futile to seek to evade responsibility for the statements made by your Commissioner by complaining that the protest is not made in courteous terms. I must remind you that three years ago in reply to my letter you did me the honour of devoting a whole article to abusing me, but utterly failed to substantiate the injurious and inaccurate statements which your Special Commissioner had made respecting the medical profession in Birmingham, and against which I had protested somewhat hotly. This was replied to not only by myself but by Dr. Carter, who wrote under date August 10th, 1897, "I venture to think that you will do well to repudiate and withdraw without delay the statements of which Dr. Saundby and I complain," and I should also like to quote the final passage of my own letter, under date August 9th, 1897, where I say, "With respect to your accusation of want of courtesy, I have only to add that if in rebutting accusations which are false and injurious I have been wanting in the courtesy due to those who make such accusations I apologise, but I leave it to the judgment of the profession to say whether such charges should ever have been published and defended in the editorial columns of THE LANCET." To those letters you vouchsafed no reply, and it is wholly inadequate to say now that you did not reply because the challenge was "rude." I do not think it can fairly be said that my present request to have the statements made by Mr. Adolphe Smith in Paris either substantiated or withdrawn is rude or unfair, and I think I was fully justified in referring to the events of three years ago, where his accuracy was most distinctly challenged and he failed to adduce any facts in support of such injurious allegations as that "a spirit of selfish money-grabbing" animated the medical profession in Birmingham, and that it had been "particularly difficult to group the medical men together and get them to put their personal interest in the background so as to defend the position of the profession as a whole"; or that "instead of inquiring what good cause is to be promoted they (the medical profession in Birmingham) will strive to find out that some personal interest is to be served." Now, we are told on the authority of Mr. Adolphe Smith that owing to the conduct of Birmingham consultants combinations of the local profession in the towns of Coventry and Wolverhampton against certain ostracised practitioners have failed, and I ask whether he has been correctly reported and if so for the ground upon which this statement is based, or for any evidence that the assistance or coöperation of the medical profession in Birmingham has ever been officially sought to help such a movement in either Wolverhampton or Coventry. If you refuse to substantiate these charges or to withdraw them I leave the profession to judge of their value.

I am, Sirs, yours faithfully,

Birmingham, August 21st, 1900. ROBERT SAUNDBY.

*** Our readers will find the article "abusing" Dr. Saundby on page 317 of our issue of August 7th, 1897; and on page 331 of the same issue they will find the letter in which Dr. Saundby "protested somewhat hotly." We have no desire to be harsh or to evade any responsibilities. Our aims are to obtain a decrease in hospital abuse and a cessation of the sweating tactics employed in the management of many medical aid associations. Our Special Commissioner's work in carrying out our aims commands our complete confidence.—ED. L.

A BIRTH BY THE ROADSIDE.

To the Editors of THE LANCET.

SIRS,—Perhaps such a case as the following is sufficiently rare to deserve a record. I was called late in the evening of Saturday last to the young mother of two children born after natural labours. She was returning from the village to her home a mile or two distant when she was suddenly taken in labour (which she had not expected for several weeks). After "about two pains" she was delivered

by the roadside of a fine, strong boy who was crying lustily on my arrival.

I found my bicycle lamp of much use in enabling me to pay the needful attention to the hasty newcomer. Mother and child are doing as well as if the event had occurred in more conventional surroundings.

I am, Sirs, yours faithfully,

St. Mary Bourne, Hants., August 13th, 1900. WM. A. S. ROYDS.

"THE CAUSE OF CARIES OF THE TEETH."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of July 14th (p. 134), to hand by this last mail, I notice a letter from Dr. Harry Campbell in which he supports the theory of Dr. J. Sim Wallace that "the great prevalence of dental caries among civilised people is due to their eating soft and pappy foods requiring little mastication." Would either of these gentlemen kindly explain how they reconcile this theory with the following fact. The great majority of South African natives live on nothing but soft pappy food, which consists of a very soft porridge made from ground mealies or Indian corn; their only method of cleansing their teeth is to fill the mouth with water and rub the teeth with the finger—and yet carious teeth among natives are the exception rather than the rule; on the contrary, they possess beautiful, sound, strong, milky white teeth, of perfect shape and formation, absolutely free from any taint of tartar or other discolouration, and seldom if ever malformed or irregular. I am, Sirs, yours faithfully,

A. BERLYN, L.D.S. F.P.S. Glasg.

Cape Town, August 1st, 1900.

A RIDE FROM LONDON TO EDINBURGH AND BACK ON A TRICYCLE BY A VEGETARIAN IN HIS SEVENTY-EIGHTH YEAR.

To the Editors of THE LANCET.

SIRS,—I am much interested in advancing the cause of total abstinence from meat, alcohol, and tobacco, and I have practised it on myself for more than four years. I have just returned from riding to Edinburgh and back on my tricycle and I am desirous of ascertaining whether anyone of my age—78 years next April—has accomplished a similar journey either on flesh or vegetarian diet. If you can kindly help me in this matter I shall esteem it a favour.

I left London on July 11th and my sleeping places during my ride were—July 11th, Dunstable; 12th, Northampton; 13th, Leicester; 14th and 15th, Matlock Bath; 16th, Buxton; 17th, Altrincham; 18th, Preston; 19th, Milnthorpe; 20th, Grasmere; 21st and 22nd, Keswick; 23rd, Longtown; 24th, Hawick; 25th, Edinburgh; 26th, Dunbar; 27th, Belford; 28th and 29th, Alnwick; 30th, Durham; 31st, Northallerton; August 1st, Ferrybridge; 2nd, Retford; 3rd, 4th, 5th, 6th, and 7th, Newark, detained by the rain; 8th, Stamford; 9th, Normon Cross; 10th, Hitchin; 11th, home in London.

During the 31 days I was away I slept in 24 beds. I experienced the greatest kindness everywhere and I had little or no trouble with my tricycle. My weight on my return was the same as when I started—116 lb. net. My tricycle weighed 45 lb. without luggage, and with what I carried about 60 lb. It was geared up to 72 and my cranks were seven inches in length. I am open to be examined by any medical man as to my bodily health.

I am, Sirs, yours faithfully,

Kilburn Priory, N.W. C. J. HARRIS, M.R.C.S. Eng., &c.

THE PREVENTION OF INSANITY.

To the Editors of THE LANCET.

SIRS,—In the leading article in THE LANCET of August 11th, entitled "The Prevention of Insanity at its Sources," it is remarked: "It would appear that in the province of psychiatric medicine the importance of the principle [of prevention] has not yet been sufficiently realised." And again: "With his hands filled [in ways described] he [the alienist] has not had as much leisure as is desirable for considering the prevention of insanity." The writer of the article does not surely suggest that it is the alienist who fails sufficiently to realise the importance of the prevention of insanity and to consider the methods of prevention? If any alienist so fails he must be unaccountably incapable of learning the chief lesson of his daily work, and he may with propriety be advised to employ his abilities in some more appropriate sphere. I venture to suggest that the average alienist is fully aware that prevention "is the first and most practical aim of medicine" in all its branches. He is ready with his message anent prevention what time public opinion and the legislature are prepared to listen to him, albeit his task is harder and his facilities for inculcating knowledge less than in the case of the general physician, who has to enlighten the public upon matters, such as the prevention of tuberculosis and of specific fevers, as to which it is largely anxious to receive information.

It appears from Dr. Percy Smith's remarks that in Finland and in Norway (to these countries I believe one, at least, of the States of the American Union may be added; there, according to a leading American organ on insanity, the marriage of "epileptics, imbeciles, and feeble-minded" was in 1895 made illegal, under certain conditions) public opinion is riper for legislation on some of the vital points in question than it is here. So much the better for the people of those countries and the worse for the British taxpayer. His foreign compeers make probably a humbler, a less ambitious effort to house and provide for their insane, but they and those authorised to act for them are, on the other hand, blessed with a greater receptivity towards the teachings of the experts in the matter of prevention.

I am, Sirs, yours faithfully,

EDWIN GOODALL.

Joint Counties Asylum, Carmarthen, August 13th, 1900.

THE SOUND VALUE OF LETTERS IN READING.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of May 26th, p. 1506, Professor James Hinshelwood of Glasgow in the course of a paper on Congenital Word-blindness, says: "The memory of words is first registered in our auditory memory—i.e., we are able to spell a word before we are able to recognise the word by sight alone. When the individual has acquired in his visual memory a knowledge of the individual letters he is able to read words by spelling out aloud each letter, and thus by appealing to his auditory memory he gets the proper word." Professor Hinshelwood does not exactly say so, but I infer that he means that by spelling a word such as "cat" the pupil judges from the *sound value* of each letter that combined they produce the sound *cat*. I do not doubt that this is generally so and as exceptions may be of interest I send you the following case.

Over ten years ago I saw a Borneo Dyak woman, about 17 years of age, who had begun to learn to read English, although she could only speak a few sentences. She had no previous education but could speak Dyak and Malay, in which latter language the instruction in English was conveyed to her. She had lived partly in her Dyak village and partly with her aunt who was employed in a European family. She had also on two occasions spent several months in hospital for tuberculous ulcers on the legs and arms. So she was not entirely ignorant of European ways and ideas and she was very intelligent, though the perceptive faculties were in advance of the reasoning ones. She learned her alphabet without any difficulty and went on from small words to those of eight or more letters quite readily. Her visual memory was excellent. But it was found that she had no idea of the *sound value* of a letter nor could she be got to understand it. The length of a word within reasonable bounds gave her no extra difficulty. "Elephant" gave her no more trouble to remember than "rat" when once she had mastered its form. She read "dog" because she had been taught to give those letters that sound, but substitute a "t" for the "g" and she knew absolutely nothing about "*dot*." She recognised the change and learned the new word, but could not see that the difference was caused by the *sound value* of the changed letter. To try her she was told that "c a s e" spelled *horse* and saw nothing unusual about it. Those letters spelled horse, that was all. But such experiments were not tried often lest it should destroy her confidence in her teacher. No doubt in time she

would have read well, as her stock of words increased, but I do not think she would ever have been able to read a new word, however simple, without its being first pronounced for her.—I am, Sirs, yours faithfully,

J. W. ROLPH, M.D. Univ. Vic. Col., Canada,
L.R.C.P. Lond.,
Medical Officer, Pahang Corporation, Lt.
Malay Peninsular, July 2nd, 1900.

THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION AND THE CASE OF MR. H. M. O'HARA.

To the Editors of THE LANCET.

SIRS,—In the last number of THE LANCET [1] there appears what purports to be an account of the O'Hara case from your Melbourne correspondent. This account, being written by a prominent member of the late council, is purely an attempted justification of their action and is not a proper or full statement of the case. In justice to the present council and branch, might I ask you to make known the following facts through the medium of your widely-circulated journal?

The members of the present council, much against their inclinations, have taken up the work of the branch in order to prevent the branch from breaking up and to protect the interests of those members who were opposed to the extreme action of the late council. The members of the present council are decidedly of opinion that it is the duty of every member of the profession to protect, as far as he can, a brother professional's reputation, and only convict him of either a crime or a breach of ethics, after an impartial hearing, and upon the clearest evidence. When a decision is come to in the proper and constitutional way it should be loyally accepted by his brother professionals. We wish to strongly emphasise the fact that no body of men are more keen and zealous in upholding the dignity and honour of the profession than the council and members of the Victorian branch. We greatly resent the suggested imputation to the contrary. We take this opportunity of expressing the opinion which we have formed, and to which we submit any fair and right-minded man must come to, that the conduct of the case by the late council was inconsistent with all ideas of British fair play and abhorrent to every right-minded man.

Before pointing out a few respects in which the late council acted in a way opposed to the principles of natural justice it is necessary for us to make it clear that Mr. O'Hara is no longer a member of the Association, having resigned on March 29th last.

We now lay before you a few facts which clearly show to the fair-minded men that the conduct of the case was a travesty of justice. The late council was sitting purely in a judicial capacity; as such, every one of them should have been above any suspicion of bias and no one of them should have acted as accuser and one of the judges. Dr. Springthorpe, who proposed the resolution of expulsion at the council meeting, directly acted as the accuser and outside the council sought to gather evidence to substantiate his charge; in addition to which he acted as one of the judges. Further, Mr. O'Hara asked for the name of the member who made complaints against him. This was refused him. He afterwards asked for the name of the member who was proposing the resolution for his expulsion. This was refused him. When the charge was conveyed to him in the vague terms "for your connexion with the Silenette Company, Limited," he asked for better information of what the charge was so that he might be prepared to meet it, pointing out that his connexion might be either proper or improper. The council refused to give him any further particulars. On the conclusion of the taking of evidence the meeting of the council was adjourned. Mr. O'Hara was not invited to attend such adjourned meeting nor was he informed when the same was to be held, as he was entitled to under By-law 4 of our rules. He was thereafter informed that the council had passed a resolution expelling him and when he wrote three times for a copy of the evidence upon which his expulsion had taken place this was also refused him. The explanation of this, afterwards given by the President (Mr. G. A. Syme) to the general meeting on March 21st, being that they (the Council) thought it might get into the hands of the members of the Association and improperly prejudice them and that they might pre-judge the case. My council is at a loss to know what this explanation means. It clearly shows the length the council were prepared to go to get the branch to support their resolution of expulsion.

At least one of the members of the late council, whilst so acting as judge, personally canvassed and sought to improperly influence members of the branch before the meeting on March 21st, whilst another the night before the meeting sent out his private cards to certain members urging them to attend the meeting. After the evidence had been closed Dr. Springthorpe looked about for further evidence and at the last moment improperly submitted what he declared to be additional evidence to the general meeting. In addition to this some of the council threatened that unless the members of the branch supported their verdict they would resign from the branch and "smash it up." Each member of the branch at the general meeting was called upon to exercise the same judicial function as the members of the council, and, in fact, acted as a court of appeal. Notwithstanding that the council was sitting purely as a judicial body, and that they were trying a brother professional—although perhaps not for a criminal offence, still, for an alleged breach of medical ethics, which they regarded as sufficient to professionally and socially destroy him—they acted in the way I have pointed out. To the large number of members who voted against Mr. O'Hara's expulsion these proceedings and tactics were abhorrent, as they must be to all right-minded men.

These facts alone are more than sufficient to vindicate the action which the branch took, and hence has the support of the present council. Since taking office the council have very carefully considered Mr. O'Hara's case and they are more than ever confirmed in opinion that the charge against this gentleman was not proved. Further, since assuming office we have ascertained that important correspondence which took place between Mr. O'Hara and the late council was not even placed before the general meeting on March 21st. Nor was the very important fact that Dr. Springthorpe and, we understand, some other members of the council desired to compromise the matter with Mr. O'Hara between the passing of the resolution by the council and the holding of the general meeting placed before the meeting. Of such suggested compromise we have written evidence. We are decidedly of opinion that, instead of the case being heard on its merits, there were many influences at work which prevented the accused from having a fair and impartial hearing before the late council.

I am, Sirs, yours faithfully,

W. B. VANCE,
Honorary Secretary, Victorian Branch,
British Medical Association.
High-street, St. Kilda, July 4th, 1900.

[1] THE LANCET, May 26th, 1900.

"THE MEDICAL STAFF AND THE MANAGEMENT OF THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN-SQUARE."

To the Editors of THE LANCET.

SIRS,—I was present at the meeting of the governors and subscribers urgently summoned on the 11th inst. under circumstances so well known to your readers as to require no explanation from me. At this meeting the governors and subscribers were represented by 16 persons, while there were six or seven members of the board of management, certain of whom had formed the committee of inquiry into the condition of the hospital recently undertaken in response to the representations of the medical staff. No member of the medical staff was present. Whether the result of such a meeting can be accepted as final is a matter upon which I do not wish to enter, but there were certain points brought into prominence at the meeting which should, in my opinion, receive publicity.

The chairman, Mr. George W. E. Russell, spoke for an hour with his accustomed eloquence on the two questions before the meeting—that is to say, (1) whether the demand of the medical and surgical staff for direct representation upon the board should be granted; and (2) whether it is desirable to hold a further inquiry into the condition of the hospital—and then called upon a gentleman—a member of the Board of Trade I understood—to second his resolution:

That it is undesirable that the medical staff should be represented on the board.

The seconder proceeded to dilate upon the impossibility of any institution being successful in its working unless its affairs were conducted upon sound business principles, adding that it would be as reasonable for the servants of, say, the London and North-Western Railway or the cabinet-makers in Sir John Maple's establishment to ask for direct representation on their respective boards of directors as for the medical staff of the National Hospital for the Paralysed and Epileptic to demand seats on the board of management of that hospital. Is it not astounding that the board should allow without protest the brilliant work of a staff of world-wide renown thus to be ranked with the labour of cabinet-makers and railway servants?

The second point to which I wish to draw attention is the fact that the chairman was satisfied to explain to the meeting that the secretary-director was not the only medium of communication between the medical staff and the board of management; because, when any practical grievances were brought forward by the staff, the slightest hint to the sisters in charge of the ward or to the lady superintendent would produce the desired effect. Such a complete misunderstanding of the proper relation of the honorary medical staff of a hospital towards the nurses of a hospital has surely never been recorded publicly before.

The position is a very grave one. I trust that wiser counsels may prevail with the board of management before irreparable harm is done to the hospital.

I am, Sirs, yours faithfully,

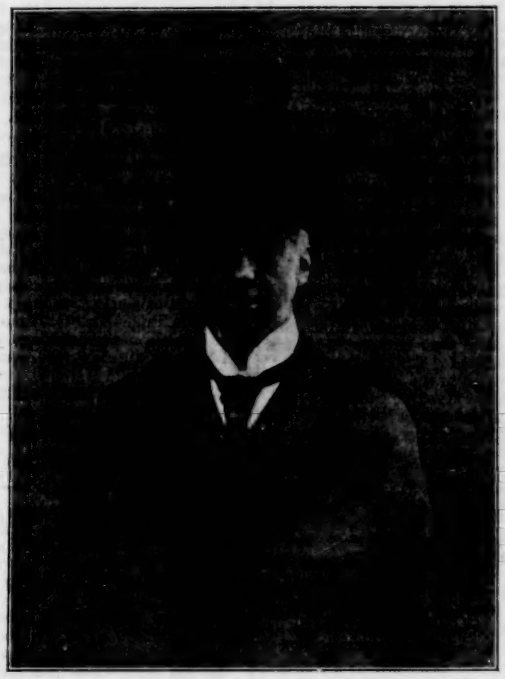
August 13th. A LIFE GOVERNOR.

Obituary.

SIR WILLIAM STOKES, M.D., M.CH. DUB., F.R.C.S. IREL.,

SURGEON-IN-ORDINARY TO HER MAJESTY THE QUEEN IN IRELAND.

THE unexpected death from pneumonia of Sir William Stokes, one of the most eminent and well known of the senior consulting surgeons of Dublin, has caused widely spread grief and disappointment among the members of the medical profession and the public in Ireland. His death took place on August 18th at Pietermaritzburg, the sad news reaching Dublin through a telegraphic message from Lord Lansdowne from the War Office, received in Dublin at three o'clock in the afternoon of the 19th. The event was entirely unexpected, inasmuch as the distinguished surgeon was timed to reach home on Sept. 20th, while the only intimation that he was ill was contained in a telegram received by Major-General Preston on the evening of the 18th. He was suffering from chronic bronchitis when he left Southampton for the Cape, but his health improved greatly during the voyage, and he wrote from the Cape that he was very well.



SIR WILLIAM STOKES, M.D., M.CH. DUB., F.R.C.S. IREL.

Sir William Stokes was the son of William Stokes, the celebrated physician who did such admirable work on the subject of diseases of the chest, while his grandfather was the well-known Whitley Stokes. His family is one which has produced many pre-eminent in medicine, surgery, and literature. Thus besides Whitley Stokes the grandfather, and William Stokes, his eldest brother Whitley Stokes, C.S.I., C.I.E., is a distinguished Indian administrator, a well-known Celtic scholar, and formerly legal member of Council to the Viceroy of India. A cousin, Sir H. E. Stokes, is also an Indian administrator and was formerly a member of Council of the Government of Madras, while another cousin, Sir George Gabriel Stokes, is Lucasian Professor of Mathematics in the University of Cambridge, is M.P. for the University, and is a past President of the Royal Society.

Sir William Stokes was educated at the Royal School, Armagh, and at Trinity College, Dublin. He received his medical training at the Carmichael School of Physic and the Richmond and Meath Hospitals. He also studied in Berlin, Paris, Vienna, and Dublin. In 1863 he graduated at the University of Dublin as M.D. and M.Ch., becoming a Fellow of the Royal College of Surgeons in Ireland in 1874. He was for many years surgeon to the Richmond Hospital, but left this institution to take a similar post at the Meath Hospital, partly because his father had been physician there.

The late Sir William Stokes filled the position of Professor of Surgery to the Royal College of Surgeons in Ireland since 1872, that is for nearly 30 years. His operation for amputation at the knee-joint—a modification of Gritti's procedure—is well known to surgeons now as "Stokes's operation." Many other operative procedures of importance have during the last 20 years emanated from him. As to his position and eminence as a surgeon there is much to be said. He commenced his surgical career as lecturer on surgery in the old Carmichael School. He was an examiner in surgery to the Queen's University, and was President of the Royal College of Surgeons in Ireland in the years 1886 and 1887 and examiner in surgery to the University of Oxford. He filled the presidential chairs of the Pathological Society of Ireland and of the Irish Graduates' Association, while he was also intimately connected with many British and foreign medical societies. He delivered the address in surgery of the British Medical Association at the jubilee meeting in Worcester in 1882. Referring to that occasion Sir Charles Cameron quotes THE LANCET in his "History of the Royal College of Surgeons in Ireland" as follows: "The event of greatest interest to the surgeons assembled at Worcester was undeniably Professor Stokes's address. The occasion, the honoured name inherited, and the high reputation borne by the orator demanded a contribution to surgical literature of more than passing value in substance, in form, and in delivery. The address was fully equal to all expectations and hopes, and to his character as a skilful and wise surgeon Professor Stokes has now added the reputation of an orator worthy of his country." In the same work will be found the laudatory report in the *Boston Medical and Surgical Journal*, which said: "There was an unmixed expression of admiration and delight at the address in surgery, in the delivery of which Professor Stokes proved a medical orator scarcely if at all second to Sir James Paget." Sir William Stokes was born on March 10th, 1839, and was therefore in his sixty-first year. He had filled the position of Surgeon-in-Ordinary to the Queen in Ireland since the year 1892, and was at different times honorary president of international medical congresses in Berlin, Rome, and Moscow. It will thus be seen that his position in surgery is almost as highly distinguished as that once occupied in medicine by his illustrious father. The sentiment expressed by Sir William MacCormac finds many echoes in Ireland when speaking of our losses in the war, he said "the medical profession has had its victims, and all connected with it, and many more besides, will hear with grief unfeigned of the untimely end of one of its foremost and most highly respected representatives, Sir William Stokes, who has died at the post of duty."

Sir William Stokes's publications included an admirable Life of his father, William Stokes. This book, which was entitled "William Stokes, his Life and Work," was published in 1898 as one of the series of Masters of Medicine. Besides the address in surgery mentioned above he delivered the Cavendish Lecture in 1888 upon "The Altered Relations between Surgery and Medicine," and contributed many papers upon operative and clinical surgery to the journals. He married, in 1869, Elizabeth, daughter of the Rev. J. L. Moore, D.D. She survives him, as do their two children, a son, Alleyne, who is at Woolwich, and a daughter.

CHARLES JAMES HISLOP WARDEN, M.D. BRUSSELS, M.R.C.S. ENG., L.R.C.P. LOND.

LIEUTENANT-COLONEL, INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL WARDEN, who died very suddenly on July 18th at his residence, 26, Highbury-grove, London, held for many years in India a prominent position as a chemist and pharmacologist. He was born in 1851 and was the only son of Captain Charles William Warden of St. Heliers, Jersey. He studied medicine at St. George's Hospital and took the diplomas of M.R.C.S. Eng. in 1872 and L.R.C.P. Lond. in 1873. While a student he interested himself in chemistry and gained a silver medal for pharmaceutical chemistry and materia medica given by the Society of Apothecaries; in 1873 he also obtained certificates of proficiency in chemistry from the Royal College of Chemistry and the Royal School of Mines. In 1874 he joined the Bengal Medical Service, and in 1876 was appointed officiating civil surgeon of Bhagulpur. A few months later he was deputed by the Board of Revenue on special duty to inquire into the cause of repeated failure of the system of taxing materials used in the distillation of spirits, and in 1878 he acted for six months as principal assistant to the opium agent, Behar. In 1879 he was appointed professor of chemistry at the Calcutta Medical College and chemical and opium examiner to the Government of Bengal, appointments which he held until 1893. In the course of these 13 years he was repeatedly thanked by the Government for the excellence of his work in various capacities. During that time, also, he examined most of the indigenous drugs and was largely instrumental in placing before the profession the "Pharmacographia Indica," a standard work in the preparation of which he was associated with Brigade-Surgeon W. Dymock of the Bombay Service and Mr. David Hooper, quinologist to the Madras Government. At the instance of the Government he made investigations on the packing of opium, on the testing of petroleum, on the manufacture of country spirits and the presence of fusel oil therein, and on the determination of the alcoholic strength of imported spirits. In 1884, while on 18 months' furlough in Europe, he took the degree of M.D. Brussels, and in 1886 was associated with Sir Frederick Abel and Mr. Boverton Redwood in drawing up the "Rules for Testing Petroleum" which were afterwards incorporated in the Petroleum Act of 1886. In 1892 he was appointed officiating medical storekeeper, Bengal. In 1893 the Pharmaceutical Society of Great Britain elected him a Corresponding Member. In 1893 he was a member of the Indian Hemp Drugs Commission and in 1895 a member of the Indigenous Drugs Committee. In 1886 he was elected a Fellow of Calcutta University. Of Lieutenant-Colonel Warden's communications to scientific journals 28 were his own and nine were written in association with others. He came to England on furlough in 1898, and in 1899 he succeeded the late Dr. F. N. Macnamara as examiner of medical stores at the India Office. Of a somewhat retiring disposition and not caring for the current pleasures of society, his chief delights lay in his laboratory and his garden. To those who had the privilege of his friendship he always extended a warm welcome, and there must be very many who mourn the early loss of a true and warm-hearted friend and brother officer.

JOHN ANDERSON, M.D., LL.D. EDIN., F.R.S., F.R.S. EDIN.

DR. JOHN ANDERSON of 71, Harrington-gardens, South Kensington, who died on August 15th at Buxton after a very short illness, was born in Edinburgh in 1833, studied medicine at the University there, and graduated as M.D. in 1861, his thesis, for which he received a gold medal, being entitled, "Observations in Zoology." Soon afterwards he was appointed professor of natural science in the Free Church College, Edinburgh, and filled the chair till 1864, when he proceeded to India and became superintendent of the Indian Museum, to which appointment that of professor of comparative anatomy in the Medical College, Calcutta, was added in the course of two or three years. In 1868 and 1874 he was selected by the Government of India to accompany expeditions to Western China *viâ* British and Independent Burmah in the capacity of scientific adviser. In 1881 he was sent by the trustees of the Indian Museum to investigate the marine zoology of the Mergui archipelago, off the coast of Tenasserim. In 1887 he retired from the service of the Government of India. Dr. Anderson was a Fellow of Calcutta University, a member of many learned societies, and the author of numerous papers on zoology and of several books, among which may be mentioned his "Report on the Expedition to Western China *viâ* Bhamô," published by the Government of India in 1871, and "Mandalay to Momien," published in 1875. In 1885 the University of Edinburgh conferred on him the honorary degree of LL.D. In 1896 he published a small treatise on the "Herpetology of Arabia."

PIERCE ADOLPHUS SIMPSON, M.D. ST. AND., M.A. CANTAB.

DR. PIERCE ADOLPHUS SIMPSON, Emeritus Regius Professor of Forensic Medicine in Glasgow University, who died at Auchengrange, Lochwinnoch, at the age of 63 years, was the younger son of Mr. Robert Simpson of Cloncorick Castle, Garrigallen, county Leitrim. He was educated at Rugby School and at the Universities of Edinburgh, St. Andrews, and Cambridge, and professionally at the medical schools of Cambridge and Edinburgh. He received the M.D. degree from St. Andrews in 1861, and took the M.A. with mathematical honours at Cambridge in the following year. He had been lecturer on medical jurisprudence at Anderson's College, Glasgow, physician to the Glasgow Royal Infirmary, editor of the *Glasgow Medical Journal*, and professor of forensic medicine in the University of Glasgow.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—Dr. F. Michl, professor of surgery in the Bohemian University of Prague, has died at the age of 50 years.—Dr. Johann Kjeldahl, Director of the Chemical and Physiological Institute at Alt-Karlsberg, near Copenhagen, whose name is universally known as the inventor of the much-used "Kjeldahl process for estimating nitrogen" in organic substances, has unfortunately been drowned at Hillerŏd when endeavouring to save a boy who was in danger while bathing.—Dr. G. Yankoloff, a Bulgarian physician, who was formerly president of the National Assembly.—Dr. Falconi, formerly professor of anatomy in the Cagliari Medical School.

PLAGUE IN AUSTRALIA.

(FROM A SPECIAL CORRESPONDENT.)

THE returns of plague in Sydney for the week ending July 14th are as follows: remaining at the beginning of the week, 57; admitted, three; discharged, nine; died, none; remaining at the end of the week, 51. The totals up to the end of the week are as follows: cases, 300; discharges, 148; deaths, 101; "contacts" isolated, 1693; "contacts" remaining, 24; cases among "contacts," seven. The above figures include Chinese, of whom 10 were admitted, with eight deaths, all the other patients being whites.

Of the three cases admitted during the week just ended only one was new, and reported in the acute stage. The other two were those of men who presented themselves as out-patients, desiring advice for inguinal buboes. One, who was attacked about five weeks ago, had shortly before had gonorrhœa and is known to have presented no other sign of illness on July 2nd than an inguinal gland considerably enlarged and then in course of suppuration. The other man, attacked about four weeks ago, could assign no reason for the occurrence of his bubo except injury received at his occupation of quarryman—histories of injury are quite commonly given by plague patients—while, on the other hand, he is known to have had a temperature of 101·6° F. when he first consulted a medical man some three weeks since. The probability appears to be that the latter had had the plague, the former not, but at all events both belonged to a much earlier date. Both, however, were sent to isolation and were placed in the convalescent wards. No case having occurred since July 1st the Government was advised that in accordance with the Venice Convention clean bills of health might once more be issued to shipping on and after July 12th, the bills to be endorsed with such statement as to subsequent occurrence of scattered cases as might become necessary.

July 17th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Inebriate Homes.

RECLAIMING the habitual drunkard has always been a difficult, and often a hopeless, task. The report of the first year's experience at the Brentry Homes near Bristol has just been issued. The board of management, after giving some interesting details, express themselves as being hopeful of success. They call attention to the difficulties met with owing to the violent character of some of the persons committed to the homes and appeal for them not to be sent. The subject was brought before a meeting of the Birmingham Justices held on August 13th, when it was stated that in the absence of any State reformatory it was not possible to send these cases elsewhere. An opinion was expressed that the violent drunkard might be sent to prison, but it was shown that a short term of imprisonment had no curative effect upon the habitual drunkard, who resumed his evil ways as soon as he was released from custody. One cannot but sympathise with the managers of the homes in their praiseworthy endeavours and recognise how important it must be for the proper conduct of such homes that the obstreperous and vicious should not be mixed with those who may be amenable to milder influences. Time, no doubt, will aid the promoters of this valuable institution in finding means most suitable to the object in view. Meanwhile the management of the sheep and the goats will tax the resources of those who find it impossible to divide them and to deal with them advantageously on separate lines.

Marston Green Homes.

Turning to a more attractive form of homes I record with satisfaction the progress made in the above-named institutions. These homes were established about 21 years ago by the guardians of the parish of Birmingham in the hope of raising to good citizenship those who had sunk by no fault of their own. They had the merit of being the first homes of the kind established in the kingdom. About an average of 300 children are in residence, with from 20 to 30 boys or girls in each cottage. For the boys a foster father and mother are provided, and for the girls a foster mother. The training is conducted by experienced masters and mistresses and the work is carried out with much zeal and interest. The good result of the management is shown by the fact that there has been only one death, and that there are at present only six patients, among some 400 children who had gone through the homes during the past year. The Lord Mayor (Alderman Beale) who presided at the annual meeting, paid a high tribute of praise to the management, and expressed an interest in the valuable results which had been obtained in the past year by the teaching of trades and occupations to the children.

Drug Adulteration.

A Birmingham chemist was fined at Tamworth Police-court, on August 14th, £10 and costs for selling milk of sulphur adulterated with 49 per cent. of sulphate of lime, and £5 and costs for selling camphorated oil which contained 25 per cent. of mineral oil instead of olive oil and 10 per cent. instead of 20 per cent. of camphor. Truly this kind of fraud is expensive when found out.

Handsome Hospital Gift.

Mr. John Corbett of Droitwich has given a further sum of £10,000 to the Corbett Hospital at Stourbridge, thus making his benefactions to that institution over £25,000. This is irrespectively of the value of the house he is erecting in the hospital grounds—a handsome building intended for the dwelling of a medical officer.

Death under Chloroform.

A young man, aged 23 years, died at the General Hospital on August 15th while under the administration of chloroform. The patient was suffering from a disease of the chest in which operation was necessary. Syncope was said to be the cause of death.

August 21st.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Inebriate Reformatories in Lancashire.

A STEP forward has at last been taken towards the establishment of inebriate reformatories in Lancashire. On August 19th a meeting was held in Preston of representatives of contributory boroughs and of the county council to consider the question. This board to carry out the Inebriates Acts in Lancashire consists of 18 representatives of the County Council and 25 members of the county boroughs. All the county boroughs have joined the board except Oldham. Borrowing power is given to the board up to £20,000 without the need for obtaining the sanction of the Local Government Board. Sir John Hibbert was unanimously appointed chairman. He described what was being done in other parts of the country and stated that there were now 133 inmates under detention, 126 women and seven men. The small number of the men is due, not to greater male sobriety, but to the want of accommodation. His own feeling was for provision being made for 100 men and 100 women in separate buildings, not too near each other, but near enough to be under the care of one medical superintendent who would reside at the men's reformatory, but who would have under his care and be responsible for the women's reformatory, where there would be a lady superintendent. He suggested that the site for the men should not be less than 50 acres and that for the women from 20 to 25, and that the reformatory should be within 10 miles of Preston, where the meetings of the board will be held. A committee was appointed to inquire as to sites and the cost of one reformatory for men and one for women, or of two reformatories for women.

Non-Notification of Scarlet Fever.

A nominal penalty of one shilling and costs seems a light punishment for failing to notify four cases of scarlet fever and sending a child out to a neighbouring shop while "peeling." But the Bench inflicted this penalty the other day at Eccles for an offence committed in April last. A woman had four children going through the various stages of scarlet fever, but did not notify them, nor did she call in a medical man, though she admitted that she isolated them—incompletely, however, as stated above, one having been sent to do some shopping. The mother pleaded ignorance as to notifying the disease at the Town Hall and the nominal penalty inflicted shows that the magistrates were touched by the plea, although they expressed the hope that the public would take the prosecution as a warning. On the other hand, it must be hoped that they will not take it as an encouragement to propagate scarlet fever at a cost within the reach of all. It is, however, significant that yesterday, August 20th, three additional cases under the Notification Act were heard at the Eccles Police-court. One of the patients was a boy, aged 15 years, whose case was notified but who was out again without his recovery having been certified. The costs (5*s.* 6*d.*) were ordered to be paid "as the town clerk did not press for a heavy penalty." Why not? He cannot wish for the spread of scarlet fever and if he will ask Lord Roberts he will probably hear that leniency is sometimes disappointing. The next case was that of a labourer suffering from scarlet fever who, though repeatedly warned that he must isolate himself, refused to do so. He set the law at defiance and wilfully endangered other people, so he was fined 5*s.* and costs. The law seems to be feebly administered at Eccles, but perhaps the people rather like scarlet fever. The last case was that of a woman who failed to notify a case of scarlet fever. She, also, though apparently less guilty than the defiant labourer, was also fined 5*s.* and costs. Those of the inhabitants of Eccles who object to scarlet fever will think they deserve better protection than the town clerk and the magistrates seem disposed to give.

A Hospital for Hyde.

At the meeting of the Town Council of Hyde held on August 14th it was reported that the death-rate of the previous month (14 per 1000) was the lowest on record, while the birth-rate was amongst the highest. Plans of a site for a new infectious hospital had been submitted to the Sanitary Committee who advised the council to approve the site and to instruct the borough surveyor to prepare plans for a new infectious hospital to contain "not fewer than 50 beds." One of the councillors explained that the Local Government Board "required that there should be a place for small-pox and a separate place a considerable distance away for scarlet fever. The brick portion of the present hospital might be used for small-pox cases. As to the new building there was no natural drainage, but that would have to be got over as they got over it with the present hospital." This seems rather a confused statement, and it is to be hoped that no blunders will be made, which does not seem impossible. Another member of

the council said that "a portion of the present hospital was in a shocking state and was a disgrace to the town." One wonders if this is the part to be used for small-pox cases. The committee's recommendation was adopted by the council.

Manchester Licences.

At a meeting of the Manchester city justices held on August 17th for the purpose of electing a Licensing Committee some interesting facts were mentioned. The chairman of the committee, Mr. T. T. Shann, said it seemed to him that there were too many licensed houses in Manchester. Referring to a recent article which touched on the question of drinking among women in Manchester he said that the committee could not interfere with confectioners' shops and similar places where the liquor was obtained; and with regard to singing-rooms, which had been designated drinking-dens, as judges, not prosecutors, they could not interfere, but it was a matter for the chief constable and the Watch Committee. The granting of spirit-dealers' and bottled-beer licences had been responsible for a great deal of drinking, and "it was a significant fact that out of 60 applications for new licences 45 were for spirit-dealers' licences, over which the magistrates had no real control." It is probably new to many people that Manchester affords more facilities for drinking than Liverpool. In the latter town there are 2090 licences and in Manchester there are 3014. Manchester has 518 fully-licensed premises and Liverpool has 1906, but of beerhouses the latter has only 256 against 1843 in the former, no less than 1726 of that number (1843) dating back to 1869 or earlier, and with these the magistrates have no power to deal unless something can be proved against the house or the tenant. In Liverpool there were only 143 "off" or spirit-dealers' licences, while in Manchester there were 633, "and these figures proved that on account of the number of fully licensed houses Liverpool did not require so many spirit-dealers' licences." In Manchester they have increased from 231 in 1871 to 709 at the present time. In Ireland the magistrates have more power in dealing with such licences than their brethren in England and it was said that "it was generally held that the new powers which had been conferred upon the magistrates of Ireland should also be applied to England," but any interference with the privileges of the drink producers and drink distributers will be fiercely contested by that powerful body which is more interested in increasing their own wealth than in promoting the true interest and well-being of their countrymen.

August 21st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Excessive Supply of Licensed Houses in Congested Areas of the City: Citizens' Protest.

A MEMORIAL was recently addressed to the licensing bench of magistrates, signed by the Lord Bishop of the diocese and other influential citizens, praying the magistrates to receive a deputation from their number, in view of the approaching annual licensing sessions, to protest against the excessive supply of public-houses in the city. Through an informality in the mode of request the deputation could not be received. The memorialists have, however, forwarded to the individual members of the licensing bench a copy of their prayer, in which they recognised the beneficent results which had followed upon the example set by the magistrates in discouraging the sale of intoxicating liquors to young children, and in prohibiting the use for trade purposes of doors opening otherwise than into public thoroughfares, and many other efforts for the benefit of sobriety. The prayer of the memorialists is considerably strengthened by the recent annual report of the medical officer of health, which devotes many pages to the evil effects of intemperance. Dr. Hope deplored a further increase in the number of deaths certified by the coroners' juries as the result of excessive drinking. "The misery and degradation, and destruction of human life consequent upon excessive and uncontrolled indulgence in alcohol are the saddest features which sanitation has to contend against and the most hopeless, since, notwithstanding that the source of this mischief is plain, the sanitary authority is powerless to control it." Inquests were held during the year on the bodies of 216 persons whose deaths were due to the effects of excessive drinking. Of these several were fatally injured by accident whilst under the influence of drink. The memorialists point out that Dr. Hope lays stress upon the fact that deaths from excessive drinking are localised, and in the district where they are most numerous the general death-rate is highest. He illustrates this fact by comparing the rate of mortality in the Exchange and West Derby (East) wards, which have each a population of about 42,000. In the Exchange ward the general death-rate was 38·7 per 1000 compared with 16·5 per 1000 in West Derby, whilst the proportion of deaths due to excessive drinking in the Exchange ward was 3·4 per cent. as against 0·5 in West Derby. The memorialists also urge that the time has come for the refusal of music and singing licences to public-houses. The representations of the memorialists will, no doubt, have great weight with the licensing bench at the approaching sessions.

The David Lewis Northern Hospital.

The completed portion of the David Lewis Northern Hospital, which has been erected to replace the old institution at the cost of the David Lewis Trust, was opened on July 30th for the reception of patients without any formality. All the patients have been removed from the old building into the new quarters, which are in every way well adapted to their purpose. There are 150 beds in the portion of the hospital just opened and it affords far greater facilities for the treatment of the sick than were experienced under the former *régime*. The south pavilion and the administration blocks are still in the builder's hands and will not be completed until next spring. The foundation-stone of the new hospital, it will be remembered, was laid in 1896 by the Countess of Derby, the Earl of Derby being at that time the Lord Mayor of Liverpool.

Corporate Baths and Washhouses.

A salient point in the corporate administration is the ample provision of free baths and washhouses in different parts of the city for use by the poor of both sexes. Further provision in the same direction is about to be made in Beacon-street in the city, and in Lister Drive in the West Derby district, plans for which have been submitted to the Baths Committee for approval, together with estimates of the cost. The baths in Lister Drive will contain three plunge baths, including one for females, and numerous vapour and other private baths. No fewer than 455,575 bathers availed themselves during the past 12 months of the facilities offered by the free bathing establishments provided by the corporation. A large proportion of the bathers were children of both sexes and a satisfactory feature of the vigilance exercised by the officials lies in the fact that throughout the period named no accident occurred in any of the baths.

Major Ronald Ross, late I.M.S., and the International Medical Congress.

Major Ronald Ross, the lecturer on tropical medicine at University College, is to be congratulated upon the compliment paid to him by the International Medical Congress recently held at Paris. Professor Blanchard, in the name of the section of Bacteriology, wired to Major Ross expressing appreciation of his valuable investigations of the causes of malarial fever. The telegram was in the following terms: "Section de Bactériologie vous adresse chaleureuses félicitations pour découvertes sur paludisme."

A New Epileptic Home in Cheshire.

A material advancement is about to be made with the proposed scheme of the Lewis Trustees to erect a home for 500 epileptic patients out of the bequest of £50,000 devoted to that purpose. An extensive estate, formerly the property of Lord Knutsford, at Great Warford, near Alderley Edge, Cheshire, has been secured, and the plans have been laid before the Bucklow rural district council for their formal sanction. The colony when finished will be one of the best equipped institutions of its kind. It will be known as the Lewis Epileptic Colony.

August 21st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The New Veterinary College for Ireland.

THE new veterinary college has at last become an accomplished fact. The premises, which are now undergoing external alterations, are situated near Ball's Bridge, the site

of the annual Dublin Horse Show. The first session of the college will commence on Oct. 3rd next and terminate in July, 1901. In addition to the Government grant of £15,000 for the institution a guarantee fund of £2000 is being provided, while the Royal Dublin Society is contributing £200 a year for five years to meet the expenses of the college until it is able to become self-supporting. The President of the Board of Governors is Sir Christopher Nixon, M.D.R.U.I., LL.D.; and the Vice-Presidents are Professor D. J. Cunningham, M.D. Edin., D.Sc, Dub., LL.D. St. And., F.R.S., William Field, M.P., the Right Rev. Monsignor Molloy, D.D., Sc.D., Sir William Thornley Stoker, M.D. R.U.I., Sir Charles A. Cameron, C.B., M.D. R.U.I., and T. D. Lambert, F.R.C.V.S. The treasurer is Professor George Francis FitzGerald, M.A., F.R.S., and the principal is an accomplished member of the Royal College of Veterinary Surgeons, Professor A. E. Mottam, B.Sc.

The Union Hospital, Belfast.

A report presented to the Belfast Board of Guardians on August 7th by Dr. E. C. Bigger, the senior visiting medical officer, on the number of patients and class of diseases treated in the Union Hospital for the six months ending June 30th, 1900, shows that there were 686 patients, made up as follows: typhoid fever, 332; scarlet fever, 87; measles, 54; whooping-cough, 55; small-pox, 1; chicken-pox, 49; erysipelas, 17; diphtheria, 26; mumps, 17; quarantine, 2; and medical cases, 46. Out of the 332 typhoid fever cases—an unusual number treated in the first half of the year—there were only 27 deaths. The admissions during the last three years to the Belfast Union Hospital are larger than the admissions into any hospital in the United Kingdom during the same period. There were no deaths in the 87 scarlet fever cases. All the cases of diphtheria—26 in number—were treated with antitoxin; two needed tracheotomy, and one of these, a boy, two and a half years of age, recovered. The chairman, in commenting on this report, said the Union Hospital was the best managed portion of their institution. Two years ago there were 420 cases of typhoid fever in the institution but the present epidemic was not so serious. The new ambulance for conveying patients to the hospital was one of the best in the three kingdoms.

The Pollution of Belfast Lough.

Dr. E. C. Bigger, medical superintendent officer of health, Belfast Union, has reported to the Castlereagh Rural District Council that, in company with Dr. A. Dunlop of Holywood, he inspected the foreshore of Belfast Lough from Holywood to Cultra on July 26th. They found the foreshore to a large extent covered with seaweed, which is mixed with sewage, and is in many places decaying, thus giving rise to a very disagreeable odour. They propose as a remedy to remove the seaweed from about the high-water mark furthest out, say, for half-tide level. Outward there is practically no decaying weed and they did not think it necessary to remove the weed from that portion of the shore. They also inspected the military barracks where there are over 1000 occupants, the sewage from which flows on to the foreshore on the Belfast side of Holywood, and this sewage as well as the sewage from the town of Holywood contributes considerably to the nuisance along the foreshore on both sides of Holywood. They recommend that the military authorities should carry their outfall sewer further out and that they should flush their sewers as far as possible with the outgoing tide. The town commissioners of Holywood, it is also suggested, should carry their sewer further out. These recommendations, it is advised, should be carried out at once, but they are only to be considered as preparatory to the establishment of some system of sewage purification, such as the bacterial, if this should be found to be desirable in the near future.

A Vaccination Case.

Dr. James Fulton, a dispensary medical officer in Belfast, was summoned by a man at the police-court, on August 11th, for vaccinating his child, a boy, aged five months, without being authorised to do so by his parents. It would appear from the evidence that Dr. Fulton, finding that the child, who lived in his district, had not been vaccinated, called upon the mother on July 7th and explained that she would be liable to a penalty if the boy were not vaccinated that week. The mother said that the child had diarrhœa and that he had not been vaccinated owing to his ill-health, and that Dr. Clokey, whom she had consulted, said he was not fit to be vaccinated. Dr. Fulton asked to see the child and the mother lifted him out of his cradle, and Dr. Fulton then said that the child was fit to be done and proceeded to vaccinate him. It would appear that, quite unknown to Dr. Fulton, Dr. Clokey, who had been with the mother when the child was born, had been his attendant since, and he gave evidence that the child had been suffering from indigestion and diarrhœa. He declined when the child was three months old to vaccinate him, owing to his delicate state of health, and he thought the vaccination had kept up the temperature. No certificate to the effect that the child was unfit for vaccination had been sent to Dr. Fulton, and when he heard that Dr. Clokey had been in attendance he at once wrote him a note in which he said: "I apologise for interfering with your patient and I am sorry if I have in any way done anything to injure the child." The whole matter seems to have originated in a mistake. The mother of the child had been a patient of Dr. Fulton's, and, purely through kindness, to prevent her being fined, he had, perhaps with excess of zeal, vaccinated her child. The magistrate said the matter amounted to an assault of a very simple technical character. He suggested that, having regard to the circumstances and to the fact that Dr. Fulton had sent a letter to Dr. Clokey expressing his regret for interfering with the child, that the summons be withdrawn, the doctor paying to the parents £1 and the costs, a course which was adopted.

The Belfast District Lunatic Asylum.

Dr. William Graham, medical superintendent of the Belfast District Lunatic Asylum, has just issued a very interesting report covering the year ending Dec. 31st, 1899, and containing financial tables for the year ended March 31st, 1900. The total number of patients under treatment in the asylum were—males 701, females 614, a total of 1315; 143 were discharged and 79 died. 334 patients were admitted during the year, the highest number since the opening of the asylum and 53 more than in the preceding 12 months. But this is really only an apparent increase of insanity, because (1) the area of Belfast has increased with a corresponding increase of admissions; (2) the procedure of admissions to the asylum is less cumbrous, so that friends of patients may take more advantage of early treatment, and as a result patients are now sent who formerly would have been detained at home; and (3) 30 per cent. of the total admissions have come from the Union Workhouse, where a proportion of chronic cases of insanity were formerly housed. Dr. Graham thinks, at worst, if there is really any increase of insanity it is slight. He emphasises as the three most prominent causes of insanity hereditary influence, intemperance in drink, and bodily disease. Dr. Graham very wisely dwells on the fact—so important for the public to know—that insanity is a purely physical disorder and that prophylactic measures and early treatment are the true means of restoration, instead of trusting to time and chance and trying to hide the existence of the affection as if it were a disgrace. The ratio of recoveries to the total number of admissions is 29·9 per cent., and to the number under treatment during the year 7·6 per cent. Of the deaths, 13 were due to general paralysis of the insane, a disease becoming more frequent, Dr. Graham says, in the district. 12 deaths were due to phthisis and it is hoped that a sanatorium for the treatment of such cases will be erected in the new asylum. The gross expenditure for the financial year ending March 31st, 1900, amounted to £23,462 2*s.* 10*d.*, being a capitation cost of £24 3*s.* 4*d.*, or £2 16*s.* 3*d.* less than the preceding year. Owing to legislative changes in connexion with the Local Government (Ireland) Act a committee of management takes now the place of the old board of governors. The report is both interesting and suggestive and not, as is so often in such documents, a mere *résumé* of dry details and statistics.

Portadown Nursing Society.

Colonel Saunderson, M.P., and his wife have generously provided for the Portadown Nursing Society a new ambulance, the choice of which was left to Dr. W. E. Hadden and Mr. J. L. Rowlett, and they selected an ambulance litter of the "Viaduct" pattern. It will be of great service to the town and district.

Asylum Accommodation in Londonderry.

At the usual monthly meeting of the committee of management of the Londonderry Asylum, held on August 17th, it was decided to adopt the recommendation of the committee regarding overcrowding in the asylum. They suggested that the ground floor of the north block of the present asylum be

given over to the female patients. In this way the accommodation of the female patients will be increased by 34 beds and that fresh accommodation be provided for 60 male patients at Gransha. This will necessitate the employment at that place of a resident assistant medical officer and some extra attendants.

Dispensary Medical Officers' Holidays.

There is a standing rule in connexion with Irish dispensary medical work that one medical officer cannot act as locumtenent for another. At a meeting of the Coleraine Board of Guardians on August 18th Dr. H. S. Morrison, medical dispensary officer of Aghadowey, and Mr. A. M. Adams, medical officer of Garvagh, asked for leave of absence, each to act for the other in turn, and the guardians wisely consented to rescind the rule against such a practice as neither of these medical men could find a substitute although last season Mr. Adams had offered £6 per week for one.

The Belfast Lough Disaster.

The result of the Board of Trade inquiry into the cause of the terrible disaster in Belfast Lough on July 21st last by which upwards of 10 persons lost their lives is that while the officers of the *Alligator* (the steamship coming from Scotland) are exonerated from all blame the certificate of the captain of the *Dromedary* (the boat going from Belfast to Glasgow) is suspended for a year and the chief officer is censured for not clearing or reporting the congested state of the forecastle.

Cork Queen's College School of Medicine.

Dr. George Ross, B.A., obtained first place at the recent examination for admission to the Royal Navy Medical Service. A total of 29 candidates presented themselves for the examination. Dr. Ross obtained his medical education at the Cork Queen's College, where he had a very distinguished career.

August 21st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Action of Various Organs upon Certain Poisons.

AT the meeting of the Hospitals Medical Society held on July 20th M. Thoinot and M. G. Brouardel communicated a paper upon the above subject. The action of the liver upon certain poisons is well known from the work of M. Roger, that of the brain from the researches of M. Widal and M. Nobecourt, while the experiments of Wassermann, Metchnikoff, Marie, Roger, and Jossué as well as those of M. Thoinot and M. G. Brouardel have contributed to throw light upon the rôle played by certain organs when brought into relation with poisons. M. Thoinot and M. Brouardel employed a common method which is very simple if somewhat rough and which consists in taking out the organ from a recently killed animal, triturating a definite quantity of it—namely three grammes, or in the case of the kidney two grammes—with a given dose of the poison to be tested, which poison is always used in the same strength. The mixture is then filtered under pressure in a sterilised compressor and the filtrate is then injected into guinea-pigs. The controls are injected with a dose of the poisonous solution which has been merely filtered. The dose of poison is calculated at so much per 100 grammes of the animal's body weight. The poisons employed were sulphate of strychnia, hydrochlorate of morphine, arsenious acid, and sulphate of atropine. The results of the experiments went to show that certain organs affect different poisons, either by inhibiting their action, or exalting their virulence, or by leaving it intact. Two of the tissues employed neutralised all the poisons experimented with, but in different proportions—firstly the liver, and secondly the kidney. This neutralising action was specially marked in the case of strychnia. Muscular tissue neutralised a fair proportion of strychnia and a less quantity of morphine and of atropine, while it exalted the virulence of arsenic. Pulmonary tissue arrested the action of atropine altogether, acted more feebly upon strychnia and morphine, and had no effect upon arsenic. Cerebral tissue neutralised strychnia and morphine, had no effect upon atropine, but greatly exalted the action of arsenic. Without seeking to explain the power of exaltation observed in certain cases M. Thoinot and M. Brouardel think that it may well be compared with that which M. J. Teissier of Lyons has recorded as existing in the liver for certain poisonous substances.

Homœopathic Activity.

A monument has just been erected in the cemetery of Père-la-Chaise over the remains of Hahnemann, which were brought for the purpose from Germany. The cost of the monument and of the transportation of the remains was defrayed by subscriptions from all parts of the world. The monument consists of a large block of red granite, on which stands a pedestal bearing a bronze bust of the founder of homœopathy and the titles of his works and the well-known formula, "Similia similibus curantur," are graven on the granite. About 40 persons, mostly Germans, were present at the unveiling ceremony. A Homœopathic Congress was held at about the same time and was officially recognised among the various Exhibition Congresses, a fact which the homœopaths consider as a decisive victory over the opposing forces of the orthodox medical men.

A Tax for the Tuberculous.

At the Congress of Hygiene Dr. Phicque, physician in charge of the sanatorium of Angicourt, proposed the establishment of an additional tax upon alcohol of which the profits should be applied to the expenses of the fight against tuberculosis. An additional penny (*décime*) to the present tax of 156 francs per hectolitre would bring in 25,000,000 francs per annum. The French duties are at present much lower than the American, 245 francs; the Dutch, 252 francs; and above all the British, 477 francs per hectolitre. The creation of this "tubercle duty" upon alcohol would, according to Dr. Phicque, be perfectly justifiable, for alcoholism is the principal cause of pulmonary phthisis. With the 25,000,000 francs which the duty would bring in sanatoria could be built and all the expenses, which are very high, of disinfecting unwholesome houses could be defrayed.

Strike of Medical Students at Marseilles.

There has recently been in progress at Marseilles a strike of a peculiar nature—that is to say, all the students, both resident and non-resident, in the hospitals. Frequently in Paris and other large towns students discontented with the chief of a hospital have threatened to give up looking after the patients until they should obtain satisfaction. In the face of the dissatisfaction manifested by the public towards this kind of strike, so contrary to the laws of humanity, they have never yet dared to carry it out to its bitter end. Now, however, the thing has actually occurred at Marseilles. The students of the hospital, who were angry with Dr. Isoard, demanded that he should be removed from his post and threatened to cease to give their service to the hospital unless that request were granted. The authorities of the hospital having refused this request the students carried out their threat and left the patients who were confided to their care without any medical attention. The authorities of the hospital managed to get the dressing done for a while by porters and nurses. Then they threatened the resident medical officers to dismiss them altogether unless they went back to work by a certain fixed date. The "strikers," however, continued in their attitude. Provision was then made for the patients to be looked after by the medical men in the town. This went on for 15 days, when the students finally gave in under the threat of having the term of study which they had already carried out annulled altogether. A general amnesty has been declared, which it is hoped will efface the recollections of these unfortunate days, the events of which do not give a very satisfactory idea of the manners and ways of thinking of the new generation of medical men.

August 21st.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Plague.

THE epidemic of plague seems to be gradually declining in all the colonies, being still most prevalent in Sydney, though no cases have occurred there for a week, while several cases have occurred in Queensland, a very few in Western and South Australia, and only one in Victoria. Concerning the case in Victoria which ended fatally some doubt has been expressed and the authorities have been blamed for cremating the body without a post-mortem

examination. Preventive measures are still carried out with undiminished vigour, the cost of exterminating the disease in Sydney already amounting to £85,000. The Board of Health in Victoria has commissioned Dr. Cherry, lecturer on bacteriology at the Melbourne University, to lecture throughout the various centres in the colony on the subject of the plague and its prevention, and the municipalities are spending money in sanitary works and destruction of rats.

Health of Sydney.

The quarterly report of the medical officer to the Sydney Sewerage Board has just been issued. He stated that the mortality was higher than in the corresponding quarter of last year, especially from preventable disease, notably typhoid fever, the number being in 1899 306 and in 1900 533. The increase was attributed to neglect on the part of the municipal authorities. Owing to an omission in the Act the Board of Sewerage had not sufficient powers to deal with faulty sanitary systems, but had control only of the sewers. Faulty fittings and connexions and bad ventilation abounded, and in many cases drains poured their contents not into the sewers but into the soil. These things had been repeatedly pointed out by the medical officer to the board, but it was not till the plague came that the municipal authorities and individual householders were roused from their apathy and the public realised the extent of the filth of Sydney. According to the report of the city health officer, Mr. Gwynne-Hughes, who has just resigned, the epidemic of typhoid fever was declining. He stated in his report for May that a systematic house-to-house inspection had been carried on and a great many houses condemned.

The Australian Natives Association.

In all the Australian colonies an association exists called the Australian Natives Association, membership of which is restricted to native-born Australians. Its main or ostensible object is to forward the interests of the native-born and "mutually improve the minds of members by discussing subjects connected with the common weal." In New South Wales the association confined itself to this object, but in Victoria and South Australia the association is registered under the Friendly Societies Act as a benefit society, affording medical attendance, medicine, sick pay, &c., to members. In Victoria the association has flourished, having 17,500 members and assets of about £100,000. In New South Wales it has languished to the extent of barely existing. With a view of improving its position at a meeting held at the Sydney Town Hall on June 18th the following resolution was carried:—

That this meeting forms itself into an Australian Natives Association to be registered under the provisions of the Friendly Societies Act.

In Victoria the A.N.A., as it is called, is the most objectionable of all friendly societies from the point of view of the medical officers. It gives the least remuneration to its lodge surgeons and it admits the largest proportion of well-to-do members who join on the plea that they do not want the medical benefits but are joining a political organisation. Once members, however, they always take the fullest advantage of their privileges and are the most exacting of lodge patients. The comparison between the membership of the association in the two colonies and the decision of the New South Wales body to become a benefit society show very clearly the real reasons why members join.

The Children's Hospital, Sydney.

A deputation recently waited on the Colonial Secretary to ask the New South Wales Government to provide a site for a new hospital which it is proposed to build for sick children. It was pointed out that the present building at Glebe was utterly inadequate. The site asked for was near the Centennial Park and had been recommended by Dr. Manning as exceptionally suitable. Objection had been raised to granting the site on the ground that it was proposed to attach to the hospital a diphtheria ward, but that proposal was now practically abandoned. The Minister in reply said that he was quite in sympathy with the deputation. He was not sure that the Government could legally bestow the land, but if it were possible they could reckon on having the site.

The Melbourne Hospital.

Twelve months ago the committee of the Melbourne Hospital instituted a system of asking patients to contribute to the funds of the hospital according to their means. Every person applying for admission had to sign a declaration stating whether or not he was able to pay and what amount if able, and strict inquiries were made as to applicants' position. The secretary reports that the system has worked well. The greater number of patients are unable to pay anything, and in no case is a patient refused admission because of poverty or treated differently to those who contribute. Still, the funds have been augmented to the extent of nearly £3000 during the past year by donations from patients. The contributions have varied from a few shillings to 30s. per week. The special effort made to extinguish the debt on the hospital is progressing steadily if slowly and a total of £16,330 has been received, the amount of the debt being £17,500.

A Dental Departure.

A valuable ram, the property of a grazier in New South Wales, lost some front teeth and being unable to nibble satisfactorily was slowly dying from semi-starvation. The services of a dentist were secured and artificial teeth were inserted so successfully that the ram is thriving as well as ever.

Intra-cranial Echinococcus.

At the June meeting of the Medical Society of Victoria Mr. Frederick D. Bird read an interesting paper on Intra-cranial Echinococcus, a condition which is rare. Mr. Bird observes that the classification of intracranial hydatids is difficult, as different conditions may be associated together, and some cases apparently intra-cranial may have originated in the calvarium. In the case reported several cysts were aggregated in a cavity with a coarsely granular surface between the dura mater and the cerebral hemisphere, and he is of opinion that the original mother cyst enclosing these cysts had disappeared as the result of pressure. The symptoms are too indefinite to allow of a diagnosis as to whether the cyst is intra- or extra-cerebral. The case recorded was that of a lad, aged 18 years, who dated his symptoms from a fall. His head was very large, 24½ inches round, and on the left side was an irregular depression which at times became tense and filled up. Vomiting had been a prominent symptom, headache with misty vision and increasing mental dulness and slight epileptiform seizures were the other symptoms, which became suddenly worse, requiring operation urgently. The operation was simple—turning down the scalp, exposing a perforation in the skull, incising the dura mater, and removing the cysts. The cavity was filled with iodoform gauze and the scalp sutured over it. On recovering from the anæsthetic the patient had a series of violent general convulsions and the temperature rose to 104·6° F. After the third day it fell to normal. On the sixth day the scalp was incised and the gauze removed. For some time his right side remained paralysed. This symptom gradually improved, and seven weeks after operation he could walk and he eventually recovered completely.

July 8th.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—In August the following candidates passed in the subjects indicated:—

Surgery.—A. St. J. Bateman (Section II.), King's College Hospital; H. N. Horton (Section II.), Middlesex Hospital; E. R. Risien (Section I.) and E. F. Rose (Section II.), St. Bartholomew's Hospital; and W. C. Spooner (Sections I. and II.), Edinburgh.

Medicine.—W. A. C. Cox (Sections I. and II.), St. Mary's Hospital; F. R. Featherstone (Section II.), Guy's Hospital; J. C. Furness, Charing-cross Hospital; J. I. Halstead (Section I.), Manchester; A. H. L. Newstead, Cambridge and St. Mary's Hospital; E. F. Rose (Sections I. and II.), St. Bartholomew's Hospital; and A. Y. St. Leger (Sections I. and II.), Cambridge and St. Mary's Hospital.

Forensic Medicine.—W. A. C. Cox, St. Mary's Hospital; J. C. Furness, Charing-cross Hospital; J. I. Halstead, Manchester; A. H. L. Newstead, Cambridge and St. Mary's Hospital; E. F. Rose and M. J. Ryan, St. Bartholomew's Hospital; A. T. Spanton, Cambridge and St. George's Hospital; and A. Y. St. Leger, Cambridge and St. Mary's Hospital.

Midwifery.—R. R. P. S. Bowker, Middlesex Hospital; E. Osborne, Birmingham; E. F. Rose, St. Bartholomew's Hospital; and W. C. Spooner, Edinburgh.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—A. St. J. Bateman, R. R. P. S. Bowker, W. A. C. Cox, F. R. Featherstone, H. N. Horton, A. Y. St. Leger, A. H. L. Newstead, and E. F. Rose.

UNIVERSITY OF LONDON: BEDFORD COLLEGE FOR WOMEN.—The following students passed the recent Intermediate Examinations of the University of London. *Intermediate in Science.*—Honours: Zoology, second class, Z.

Scrutz: pass, first division, E. Canter, M. C. H. D. Skinner, I. Slater, L. M. Warwick, J. S. Young; second division, E. Cyriax, N. S. Helm. Exempted at preliminary scientific examination from examination in chemistry and physics, C. E. L. Masche. *Preliminary Scientific.*—Second division, V. A. Turkhud, S. C. E. Sommer, also R. Western of Bedford and Westfield Colleges, first division. Students should attend on Wednesday, Oct. 3rd, from 2 to 4, to interview the principal and lecturers. The courses in Arts and Science, Training Department, Hygiene Department, and Art School will open on Thursday, Oct. 4th, at 10 A.M.

MORTUARY FOR CARDIFF.—At the meeting of the Cardiff Borough Corporation held on August 13th it was decided to erect a mortuary at an estimated cost of £2000.

VACCINATION GRANT.—Mr. James Forster, M.B., C.M. Glasg., public vaccinator for the Conisbro' district of the Doncaster Union, has obtained the special grant for successful vaccination.

VACCINATION FEES.—At the meeting of the Bristol Board of Guardians held on August 17th it was decided to write to the Local Government Board expressing the view of the guardians that the minimum fees fixed in the Vaccination Order of 1898 for public vaccinators are too high, especially in urban districts.

THE SHORTHAND EXAMINATION FOR MEDICAL STUDENTS.—With reference to the shorthand examination announced by the Society of Medical Phonographers in THE LANCET of July 7th (page 65), the executive committee announces that unless a minimum total of 12 candidates send in their names to the examination secretary (Dr. E. B. Gray, Oxford) by Sept. 30th, the examination will not be held.

LUNACY FEES.—At the meeting of the Devonport Board of Guardians held on August 17th several of the guardians protested very strongly against what they considered an excessive charge for lunacy examinations. The discussion arose upon the account of a medical practitioner who had charged the usual fee of two guineas for the examination of two workhouse inmates. After a long and heated discussion a committee was appointed to approach the bench of magistrates with the view that on all future occasions the fee should be reduced to half a guinea per case.

DEPUTIES OF MEDICAL OFFICERS OF HEALTH.—At the meeting of the Stonehouse (Plymouth) District Council held on August 14th a recommendation of the sanitary committee that Mr. T. N. Leah be accepted to act as deputy during the temporary absence at any time of his father, the medical officer of health, was defeated by six votes to four. One of the speakers thought that if the suggestion was carried out the council was under an obligation to appoint Mr. Leah as medical officer if the office became vacant and he objected to the principle that because a father held an office his son must follow him.

VACCINATION STATISTICS.—At the meeting of the Barton Regis (Bristol) Board of Guardians held on August 17th it was reported that 193 births had been registered during the first six months of 1900 and that of these children 115 had been successfully vaccinated.—The Thornbury (Gloucestershire) Guardians report that out of 180 children whose births were registered during the first half year of 1900 there had been 156 successfully vaccinated.—The Wells (Somerset) Board of Guardians report 226 births in their district for the first six months of 1900 and 154 successful vaccinations.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, King William-street, Strand, London.
The Principles and Practice of Hydro-therapy: a Guide to the Application of Water in Disease. By S. Baruch, M.D. Illustrated. 1900. Price 16s. net.
The Permanganate Treatment of Opium and Morphine Poisoning. By Dr. Wm. O. Moor, New York City. 1899. Price 1s. 6d. net.

BLUE LANGUAGE, 147, Avenue Malakoff, Paris.
Abridged Grammar of the Blue Language. Bolak. International Practical Language. English version. By Professor Fischer. 1900.

CHURCHILL, J. & A., Great Marlborough-street, London.
The Goulstonian Lectures on the Typhoid Bacillus and Typhoid Fever. 1900. By P. Horton-Smith, M.A., M.D. Cantab., F.R.C.P. Lond. 1900. Price 2s. 6d.
Lepra Bibliotheca Internationalis. Vol. I. Fasc. 3. Price 20s. per volume, of four fasciculi. 1900.

CORNISH, J. E., St. Ann's-square, Manchester.
Elements of Qualitative Analysis. By G. H. Bailey, D.Sc., Ph.D., and G. J. Fowler, M.Sc. Viet. 1900. Price 2s.

GLAISHER, H. J., Wigmore-street, London.
La Constipation Habituelle, son Traitement. Par G. Herschell, M.D. Traduit de la Seconde Edition Anglaise, par M. Cohendy. Préface de Albert Mathieu. 1900.

GOVERNMENT PRINTING OFFICE, Washington.
United States Bureau of Education: Experimental Study of Children, including Anthropometrical and Psycho-physical Measurements of Washington School Children, and a Bibliography. By A. MacDonald. 1899.

HOLMES, R. L., Dunlop-street, Glasgow.
The Pathogenesis and Treatment of Cancer without Operation. By R. Bell, M.D., F.F.P.S. 1900.

KIMPTON, H., High Holborn, London.
A Practical Treatise on Sexual Disorders of the Male and Female. By R. W. Taylor, A.M., M.D. Second Edition. Illustrated. 1900.
Progressive Medicine. By H. A. Hare, M.D., assisted by C. A. Holder, M.D. Vol. II. June, 1900.

LAYTON, CHARLES AND E., 61, Farringdon-street, London.
Handy Newspaper List. 1900. Price 6d.

PUTNAM'S, G. P., SONS, London.
Duality of Voice: An Outline of Original Research. By Emil Sutro. 1899.

PEREIRA BRAGA AND CO., Rio de Janeiro.
Etude sur la Lèpre au Brésil. 1900.

SCOTTISH MEDICAL AND SURGICAL JOURNAL, Edinburgh.
The Scottish Medical and Surgical Journal. Edited by Wm. Russell, M.D., F.R.C.P. Edin. Sub-editor, N. Walker, M.D., F.R.C.P. Edin. Vol. VI.—January to June. 1900.

SIMPKIN, MARSHALL, HAMILTON AND CO., London.
Love is in the Stomach not the Heart. By John M. Dagnall. 1900. Price 2s. 6d.

SPOTTISWOODE AND CO., New-street-square, London.
La Porte d'Entrée pour le Bacille de la Tuberculose. Par Dr. A. B. Taylor. 1900.

TAYLOR AND FRANCIS, Red Lion-court, Fleet-street, London.
Descriptive and Illustrated Catalogue of the Physiological Series of Comparative Anatomy contained in the Museum of the Royal College of Surgeons of England. Vol. I. Second edition. 1900.

UNWIN, T. F., Paternoster-square, London.
Over the Alps on a Bicycle. By Elizabeth R. Pennell. Illustrated. 1898. Price 1s.

Register of Experiments in Roentgen Rays. Price of books of 50 leaves, 6s., and 100 leaves, 7s. 6d. (Geo. Sadler. 207A. Borough High-street, London, S.E.). Anglo-Saxon Guide to the Paris Exhibition. 1900. With Map of Paris. Edited by B. Bernard (Boot and Son, Old Bailey, London). Price 1s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ADYE, W. J. A., M.R.C.S. Eng., L.S.A., has been appointed Medical Officer of Health for the Bradford-on-Avon Urban and Rural Districts, vice J. A. M. Thomson.

BLAND, M. H., M.B., M.S., M.D. Glasg., has been appointed Medical Officer of Health for the Guisborough District of the Guisborough Union, vice J. Merryweather.

CALDWELL, M., L.R.C.P. Edin., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Brotton District of the Guisborough Union, vice F. McGachen.

CONNOLLY, T. J., B.A. R.U.I., M.B., B.C. & B.A.O., has been appointed Medical Officer for the Kinvara District of the Gort Union.

COURTENAY, F. W. E., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Surgeon on board the Allan mail steamer *Numidian* for Canada.

FRAZER-TOOVEY, THOS. E., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., L.M. Rotunda, has been appointed House Surgeon to the Teignmouth Hospital, South Devon.

FORSYTH, C. B. P., M.B., Ch.B., has been appointed Assistant Medical Officer, Metropolitan Asylums Board, to the Eastern Hospital, The Grove, Homerton, N.E.

JAQUET, J. L., M.D., R.U.I., has been appointed Surgeon, M Division, Metropolitan Police, vice T. Evans, resigned.

KENNEDY, W. W., M.R.C.S. Eng., L.R.C.P. Lond., M.B. Lond., has been appointed Medical Officer of Health for the Beaconsfield District of the Amersham Union.

MANSON, R. H., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health of the Darlington District of the Darlington Union, vice R. T. Manson.

RAEY L., M.D. Durh., M.R.C.S., L.S.A., has been re-appointed Medical Officer for the Second District of the Devizes Union.

RATTRAY, A. M., M.B., C.M. Edin., has been appointed Senior Assistant Medical Officer to the Newcastle City Asylum, Gosforth, vice D. Hunter, resigned.

RICHARDS, J., has been appointed Medical Officer of Health for the Conwil District of the Carmarthen Union.

SUTHERLAND, E. A., has been appointed by the board of management Honorary Physician to the City Orthopædic Hospital.

THORNEY, J., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Skelton District of the Guisborough Union, vice S. Merryweather.

WATTS, E. C., M.D. Edin., C.M., has been appointed Medical Officer to the Guisborough Union Workhouse, vice J. Merryweather.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRADFORD ROYAL INFIRMARY.—Junior House Surgeon, unmarried. Salary £50 per annum, with board and residence. Also Dispensary Surgeon, unmarried. Salary £100 per annum, with board and residence.

BRECON INFIRMARY, No. 6, Bulwark, Brecon, South Wales.—Resident House Surgeon, unmarried. Salary £100 per annum, with furnished apartments, board, attendance, fire, and gas.

BRIGHTON, HOVE, AND PRESTON DISPENSARY (WESTERN BRANCH AND COTTAGE HOSPITAL), 113, Queen's-road, Brighton.—House Surgeon. Salary £120 per annum, with board and residence.

CANCER PAVILION AND HOME, Manchester.—Surgical Officer.—Applications to Mr. E. W. Marshall, 38, Barton Arcade, Manchester.

CARLISLE DISPENSARY.—House Surgeon. Salary £150 per annum, with apartments (not board).

CHESTER GENERAL INFIRMARY.—Second Resident Medical Officer. Salary £80 per annum, with residence and maintenance in the House.

CITY OF SHEFFIELD.—Assistant Resident Medical Officer for the two City Hospitals for the Treatment of Cases of Infectious Diseases. Salary £150 per annum, with board, lodging, and attendance Applications to the Town Clerk, Town-hall, Sheffield.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer, unmarried. Salary £120, rising £10 annually to £150, with board, furnished apartments, &c.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon for 12 months. Salary £100, with board, residence, and washing.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

DONCASTER GENERAL INFIRMARY AND DISPENSARY.—In-door Dispenser and Assistant to the House Surgeon. Honorarium 20 guineas per annum, with board, lodging, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY, Dumfries.—House Surgeon. Salary £50 per annum, with board and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—House Surgeon. Board, residence, &c., are provided and an honorarium of £25 will be granted at the completion of six months' approved service. Also Resident Medical Officer. Salary £80 per annum for the first year and £100 for the second, with board, residence, and laundry. Also Medical Officer for the Casualty Department. Salary at the rate of £100 per annum, and luncheon is provided at the Hospital.

GESTO HOSPITAL, Isle of Skye, N.B.—Resident Medical Officer. Salary £200 per annum, with free furnished house, garden, coals, light, and taxes. Apply to Mr. J. Simpson, Portree.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Junior House Surgeon for six months. Salary at the rate of £30 per annum, and board, lodging, and washing provided in the hospital. Also Anæsthetist for twelve months. Honorarium 10 guineas per annum. Applications to Mr. L. H. Glenton-Kerr, Secretary.

HUDDERSFIELD INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and washing.

KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 a year, with board and lodging.

LIVERPOOL EYE AND EAR INFIRMARY.—House Surgeon. Salary £80, with residence and maintenance.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £70 per annum, with board and residence at the Infirmary.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon. Appointments tenable for six months. The House Physician and House Surgeon receive a salary at the rate of £40 a year. The Assistant House Physician and Assistant House Surgeon receive a salary at the rate of £20 a year.

NOBLE'S ISLE OF MAN GENERAL HOSPITAL AND DISPENSARY, Douglas, Isle of Man.—Resident House Surgeon, unmarried. Salary £72 per annum, with board and washing.

NORTH-WEST LONDON HOSPITAL, Kentish-town-road. — Assistant Resident Medical Officer. Salary £50 per annum, with board, residence, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Resident Surgeon to take sole charge of the Hyson Green Branch. Salary £200 per annum, all found except board for himself, housekeeper, and servant. Also Assistant Resident Surgeon for the chief dispensary, unmarried. Salary £140 per annum, all found except board.

PRESTON ROYAL INFIRMARY.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing, &c.

ROCHDALE INFIRMARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, and washing.

ROTHERHAM HOSPITAL.—Senior House Surgeon. Salary £105 per annum, with board, lodging, and washing.

ST. PETER'S HOSPITAL FOR STONE, Henrietta-street, Covent-garden, W.C.—House Surgeon for six months. Salary at the rate of £100 per annum, with board, lodging, and washing.

STAMFORD-HILL AND STOKE NEWINGTON DISPENSARY, 189, High-street, Stoke Newington.—Assistant Resident Medical Officer. Salary £100 per annum, with board.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon. Salary at the rate of £24 per annum, with board, residence, and washing.

STOKE-UPON-TRENT UNION.—Resident Medical Officer. Salary £130 for for the first year, with an increase of £15 per annum to a maximum of £175, with board, washing, and furnished apartments at the hospital.

SURREY DISPENSARY, Great Dover-street, Southwark, S.E.—Resident Medical Officer. Salary £150 per annum, with furnished apartments, coals, gas, and attendance.

THE CHIEF INSPECTOR OF FACTORIES gives notice of vacancies for Certifying Surgeons under the Factory Acts at Ballachulish, in the county of Argyll; at Scarborough, in the county of York; for the Helensburgh District, comprising the civil parishes of Arrocher, Luss, Roseneath, and Row; and for the Watton District of Norfolk.

TOWNSHIP OF MANCHESTER.—Assistant Medical Officer. Salary £100, with furnished apartments, fire, light, washing, and attendance.

UNIVERSITY COLLEGE, CARDIFF.—Demonstrator and Assistant Lecturer in Anatomy and Demonstrator and Assistant Lecturer in Physiology. Salary in each case £120.

WEST AFRICAN RAILWAYS EXTENSIONS.—Qualified Medical Officers required to accompany an important Special Survey Party leaving London early in October. Salary £40 to £50 per month.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician and also House Surgeon for six months from Oct. 1st. Board and lodging provided.

WEST NORFOLK AND LYNN HOSPITAL, King's Lynn.—House Surgeon. Salary £100 per annum. with board, residence, and washing.

WEST RIDING ASYLUM, Wadsley near Sheffield.—Temporary Fifth Assistant Medical Officer for six months. Salary at the rate of £140 per annum, with apartments, board, and attendance.

WOOLWICH UNION.—Assistant Resident Medical Officer. Salary £120 per annum, rising £10 yearly to a maximum of £150, with apartments, rations, and washing.

Births, Marriages, and Deaths.

BIRTHS.

BRAINE-HARTNELL.—On August 18th, at Powick, Worcester, the wife of G. M. P. Braine-Hartnell, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

CLARKE.—On August 18th, at Windsor House, Morley, the wife of Travers Clarke, L.R.C.P. Lond., M.R.C.S., of a daughter.

KIRBY.—On August 16th, at Sutton Court-road, Chiswick, the wife of W. Egmont Kirby, M.D. Brux., L.S.A., of a son.

MACKINTOSH.—On August 19th, at St. Ives, Platts-lane, Hampstead, the wife of John Stewart Mackintosh, M.R.C.S., L.R.C.P., of a son.

MOFFAT.—On August 16th, at Knockholt, Sevenoaks, the wife of R. U. Moffat, C.M.G., M.B., C.M., Principal Medical Officer, Uganda Protectorate, prematurely of a son, who survived his birth only one hour.

MUSSON.—On August 14th, at King-street, Clitheroe, the wife of A. W. Musson, M.B., B.C. Cantab., of a son.

PILCHER.—On August 14th, at Boston, Lincs., the wife of Cecil W. Pilcher, M.R.C.S., L.R.C.P. Lond., of a daughter.

ROBERTSON.—On August 14th, at Disraeli-gardens, East Putney, the wife of F. W. Robertson, M.A. Glasg., M.B. Lond., of a son.

ROWELL.—On August 20th, at York House, Huddersfield, the wife of J. G. Rowell, M.R.C.S., L.R.C.P. Lond., of a son.

RYLE.—On August 19th, at German-place, Brighton, the wife of R. J. Ryle, B.A. Oxon., M.A., M.D., M.R.C.S. Eng., of twins (girl and boy).

SYRETT.—On August 18th, at Naylands, Colchester, the wife of H. F. Syrett, M.D., of a daughter.

WAIT.—On the 11th inst., at Tynemouth, Northumberland, the wife of J. Alfred Wait, B.A., M.B. Cantab., of a daughter.

WILLIAMS.—On the 18th inst., at Rotorua, Harrow-on-the-Hill, the wife of Dr. A. H. Williams, of a son.

WILSON.—On August 17th, at Trafford House, Liscard, Cheshire, the wife of Andrew Robertson Wilson, M.A., M.B., C.M. Edin., of a son

MARRIAGES.

LYTH—MAGUIRE.—On August 9th, at the Methodist Church, Knock, Belfast, Edgar Roe Lyth, M.B. Durh., M.R.C.S. Eng., of Shepherd's-bush, to Lucy, daughter of the late Rev. T. Maguire, of Belfast.

PRIOR—CLARKE.—On July 2nd, at Christ Church, Kapunda, Guy Percival Underdown Prior, L.R.C.P., M.R.C.S. Eng., eldest surviving son of the late Richard Henry Prior, M.D., J.P., St. Albans, to Anna Blanche, eldest daughter of — Clarke, Esq., of Kapunda, South Australia.

TURNER—DALBY.—On August 23rd, at St. Matthew's, Ealing, by the Rev. F. Dalby, Vicar of Holy Trinity, Gainsborough, cousin of the bride, assisted by the Rev. H. C. Douglas, vicar, Frank Douglas Turner, M.B., of New North-road, Huddersfield, to Louisa Caroline (Midgie), youngest daughter of Major Dalby, R.M.L.I., of Fregoe, Ealing.

DEATHS.

ANDERSON.—On August 15th, at Buxton, John Anderson, M.D., LL.D., F.R.S. Lond. and Edin., of Harrington-gardens, S.W., aged 66.

ORTON.—On August 19th, 1900, at Beeston, Notts, John Orton, M.D., after a long and painful illness met with unflinching fortitude.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE ETHICS OF CONSULTING PRACTICE.

To the Editors of THE LANCET.

SIRS,—I venture to draw attention to the following circumstances and to ask if any action should be taken, because it seems to me that such incidents ought not to be passed over unnoticed. About the middle of January of this year I was called to a member of a large family I have attended during the past 14 years. The trouble was severe pain in the loins. Early in March as the pain was no better I suggested a consultation and, as is my custom, asked if any particular consultant was preferred. A name being given me I could take no exception to I at once wrote to the gentleman designated giving particulars of the case, and asked for an appointment. I heard from the consultant that he would write again after the examination of some specimen taken from the patient. I have not since heard from him or from my patient, who was taken into a nursing home for a time and then sent on a voyage. At the end of this the consultant visits my patient, ten miles or more from his house, and advises an operation in a nursing home near his house. The operation revealed the nature of the case and soon after, as was inevitable, the patient died. So far I did not feel particularly hurt. I thought that perhaps the consultant in his zeal to effect a cure had forgotten all about me, but when I saw that he attended the funeral of one he knew nothing of five months ago and whom he could not have seen on 30 different days I must conclude I have not received that treatment at his hands which I think I had a right to expect. This consultant is not old and not young; he holds hospital appointments and is a lecturer at one; he is well known, a member of learned societies, and the author of articles and a large work on a speciality. If I send my watch to the watchmaker and he keeps it I have my remedy and need not let him have the chain too, but in a case of this sort I know of no remedy and have a good chance of losing still more. I am, Sirs, yours faithfully,

August 20th, 1900. McD.

HYSTERICAL JOURNALISM.

To the Editors of THE LANCET.

SIRS,—I am unwilling to think that any radical change is taking place in the English character, but certainly there have been many articles in English newspapers and even in the magazines and reviews during the past six or eight months which would justify such an opinion. I think there can be no doubt that hysterical journalism has taken root in England. It is a serious disease. The thirst for publicity, the crazy rush for the latest bulletin, careless whether it be fact or fiction, is a symptom of a general paralysis. I have always thought that if English newspapers were not conspicuous for enterprise they were cool-headed and reliable. Must this characteristic go? To my amazement I read in the *Times* which has just come obituary notices of members of our Legation in Peking. What proof have we that these men are dead? However melancholy the outlook may be, it appears to me to be very bad form to publish a man's obituary before reasonable proof of his death has been obtained.

I am, Sirs, yours faithfully,

Halifax, N.S., August 2nd, 1900. J. S.

"A DISGUSTING THREAT."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 18th, p. 560, I read what is termed a "disgusting threat." No terms can be too strong for the threat. Assuming that the statement of "Nemo" is correct and can be proved—as it would appear from his letter that it can be—the only course, apart from legal or criminal proceedings, is to apply to the General Medical Council and have the threatener's name struck off the roll of registered medical students. "Nemo" "does not wish to harm the fellow for the sake of his father and mother"; but for humanity's sake this unfortunate creature who proposes to create, or rather propagate, a most loathsome disease by methods which he has learned during his medical education should be debarred from ever entering the medical profession. Our aims are to combat disease and to save life. No man who has expressed the intention of communicating one of the most terrible diseases known should be allowed to enter our ranks. I am, Sirs, yours faithfully,

August 18th, 1900. M.D.

"FRUIT SALT."

To the Editors of THE LANCET.

SIRS,—The attention of our clients, Messrs. J. C. Eno, Ltd., has been drawn to THE LANCET of the 11th inst. where, under the head of "Analytical Records" you give on page 405 a report on various preparations of Coombs Eureka Aerated Flour Co., Ltd., including their so-called "Fruit Salt." You are probably not aware that on Messrs. Coombs recently putting a saline preparation on the market under the title of "Fruit Salt," we at once drew their attention to the fact that they were thereby infringing our clients' rights and, after taking counsel's opinion on the matter, they on the 12th July ult., entered into an agreement with our clients whereby (*inter alia*) they agreed to discontinue the use of the title "Fruit Salt" for their preparation and to call in all outstanding stock and to destroy or alter all printed matter bearing that title. Although our clients' right to the exclusive use of the title "Fruit Salt" as applied to any medicinal preparation has been clearly established, the appearance in your widely-read journal of the notice in question is calculated to induce the belief that anyone may, to our clients' injury, put on the market saline preparations under that title, and we shall therefore feel obliged if you will insert in your next issue a paragraph to correct such an impression.

We are, Sirs, yours faithfully,

GARRARD, JAMES, AND WOLFE.

Suffolk-street, S.W., August 14th, 1900.

*** The specimen of Eureka Aerated Flour reported upon in our issue of August 11th was sent to us before the Coombs "Eureka" Aerated Flour Company, Limited, had received the letter of protest from Messrs. Garrard, James, and Wolfe, acting for Messrs. J. C. Eno, Limited.—ED. L.

SUMMER DIARRHŒA.

THE following notice has been issued to all parents by Mr. C. M. Fegen, medical officer of health of the Croydon Rural District Council:—

During the hot months young children are especially liable to very severe attacks of diarrhœa which, in a very large number of cases, have a fatal ending.

It is probable that most cases arise from the use of tainted milk or other food and want of care.

Every article used for the storing or preparation of food must be kept perfectly clean, having been well scalded and then rinsed with clean cold water before use. All milk should be boiled as soon as taken in, and kept in a cool and well-ventilated place. No meat, fish, or cheese should be kept in the same place as the milk. No milk should be kept overnight.

If condensed milk is employed none but the best brands should be used and the tins kept in a cool, ventilated place while in use.

Fruit ought not to be given to infants, but if ripe and untainted it may be given to elder children.

Great care should be exercised in keeping the house, and especially the backyard, clean, and in not allowing waste vegetable matter or food to lie about rotting in the sun.

The w.c. should be well flushed down and the seat and pan kept thoroughly clean.

KOPLIK'S SPOTS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 18th, on p. 431, there are two articles re "Measles." In each of these "Koplik's spots" are mentioned. What are these? I cannot find them described in Allbutt or Fagge. Please inform OLD MORBILLI.

August 20th, 1900.

*** Koplik's spots are eruptions on the buccal mucous membrane seen in measles. They appear one or two days before the skin eruption. At first they are discrete rose red spots with a minute bluish-white centre. Later they coalesce. There is an excellent illustration in Gould's Year-book of Medicine for 1900, p. 274.—ED. L.

WANTED—A HOME.

To the Editors of THE LANCET.

SIRS,—Can any of your readers inform me of a medical man practising in Scotland—and preferably a small seaside place—who would be willing to receive into his house a paying guest? The guest in question is a lady between 50 and 60 years of age, and the terms offered are £1 15s. per week. Further details, &c., would be furnished by me to any likely one applying. I am, Sirs, yours faithfully,

J. ROSS MACMAHON.

49, Earl's-court-road, Kensington, W., August 17th, 1900.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College

(2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.).

WEDNESDAY (29th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat 2 P.M.), Cancer (2 P.M.)

THURSDAY (30th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.) University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.).

FRIDAY (31st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.).

SATURDAY (1st).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (27th).—WEST LONDON POST GRADUATE COURSE (West London Hospital, W.).—5 P.M. Dr. S. Taylor: The Diagnosis of Chest Cases.

THURSDAY (30th).—WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Dr. S. Taylor: The Diagnosis of Spinal Cord Cases.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1900, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1900 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 2

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Office, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied, Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 23rd, 1900.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb	Dry Bulb	Remarks at 8.30 A.M.
Aug. 17	29·96	N.E.	...	117	84	63	63	64	Overcast
,, 18	29·95	E.	...	117	88	63	68	72	Hazy
,, 19	30·00	S.W.	...	120	82	61	63	70	Fine
,, 20	29·80	N.W.	...	110	77	60	61	62	Overcast
,, 21	29·65	S.W.	0·02	117	75	61	62	64	Cloudy
,, 22	29·44	S.W.	...	121	73	61	61	64	Cloudy
,, 23	29·60	S.W.	0·06	73	57	55	56	57	Cloudy

During the week marked copies of the following newspapers have been received: *Nottingham Daily Express, Liverpool Daily Post, Times of India, Builder, Architect, Leeds Mercury, Glasgow Herald, Birmingham Daily Post, Yorkshire Post, North Devon Herald, Bristol Mercury, Reading Mercury, Oxford Gazette, Surrey Advertiser, &c., &c.*

Communications, Letters, &c., have been received from—

A.—Mr. T. H. Agnew, Liverpool; Mr. R. G. Allen, Belper; Mr. R. E. Adams, Lond.; Messrs. Allen and Hanburys, Lond.

B.—Mr. W. Brown, Bockworth; Mr. C. Birchall, Liverpool; Brisbane Hospital, Queensland, Secretary of; Bangalore, India, Senior Surgeon of; Sir T. Lauder Brunton, London; T. B. Browne, Ltd., Lond.; Mr. A. Benthall, Lond.; Messrs. D. T. Bostel and Sons, Lond.; Bradford Royal Infirmary, Secretary of.

C.—Dr. L. Cobbett, Cambridge; Cortland Wagon Co., Lond.; Mr. J. E. Cornish, Manchester; Mr. W. H. Cook, Huddersfield; Messrs. J. and A. Churchill, Lond.; Cantab, Lond.; Carlisle, Dispensary, Hon. Secretary of; Messrs. Crossley and Co., Lond.; Mrs. A. Chapman, Lond.; Cornwall County Council, Chairman of; Mr. J. Cantlie, Lond.; Chilian Legation, Lond.; Mr. F. W. C. Courtnay, Huddersfield; Commander-in-Chief, Devonport; Dr. W. J. Collins, Lond.; Messrs. Cresswell and Cresswell, Dowlais; Dr. H. J. Campbell, Bradford.

D.—Sir Dyce Duckworth, Lond.; Lieutenant-Colonel J. Duke, I.M.S., Jammu; Dr. G. W. Davis, Sidcup; Mr. E. Darke, Lond.; Messrs. Dean and Son, Lond.; Mr. M. E. Dovaston, Oswestry; Messrs. Down Bros., Lond.; Messrs. Dale, Reynolds, and Co., Lond.

E.—Mr. R. T. Elliott, New York; Messrs. Evans and Wormull, Lond.

F.—Dr. Russell Forsbrook, Lond.; Mr. A. L. Franklin, Coventry; Messrs. Findlater, Mackie, Todd, and Co., Lond.

G.—Sir James Grant, Ottawa; Dr. F. W. Goodbody, Lond.; Mr. H. Greenwood, St. Just; Messrs. C. Griffin and Co., Lond.; Mr. B. B. Gough, Capel; Glasgow University, Secretary of.

H.—Miss Hawarden, Croydon; Hovis Bread Flour Co., Macclesfield; Mr. Harris, Lond.; Messrs. A. and C. Harston, Lond.; Messrs. Hastings Bros., Lond.; Messrs. J. Haddon and Co., Lond.; Dr. J. H. Hunter, South Shields; Miss E. Hurlbutt, Lond.; Dr. W. Hunter, Glasgow.

I.—Messrs. Idris and Co., Lond.

J.—Messrs. W. & A. K. Johnston, Edinburgh; Justitia; Dr. W. W. Jones, Sedlescombe.

K.—Dr. R. Kirk, Glasgow; Mr. H. Kimpton, Lond.

L.—Mr. J. Lawton, Hanley; Livingstone College, Lond., Principal of; Lafayette, Lond.; Messrs. T. Lewin and Co., Lond.

M.—Mr. T. H. Middlebro', Lond.; Maltine Manufacturing Co., Lond.; Dr. W. Murrell, Lond.; Dr. James More, Rothwell; M.D., Wokingham; McD., Lond.; Dr. Ovid Moor, Lond.; Dr. J. Ross MacMahon, Lond.; Medical Society of Victoria, Melbourne, Hon. Treasurer of; M.D., Dorking; M., Barnes; Mr. J. Murray, Lond.

N.—Dr. E. N. Nason, Nuneaton; Dr. E. P. M. Neave, Dundee; Mrs. Notter, Woolstone; Mr. H. Needes, Lond.; Mr. W. E. Newey, Dudley.

O.—Mr. C. J. Ogle, Lond.; Mr. Ed. Owen, Lond.; Old Morbilli, Bournemouth.

P.—Dr. R. D. Parker, Buxton; Messrs. Parke, Davis, and Co., Lond.; Pharmaceutische Institut, Frankfurt-on-Main; Plumbers' Co., Clerk to; Preston Royal Infirmary, Secretary of.

R.—Dr. J. Ryley, Great Yarmouth; Dr. D. C. Rees, Lond.; R. A. M.; Royal College of Physicians, Edinburgh, Librarian of; Royal Albert Edward Infirmary, Wigan, Matron of; Registered Nurses' Society, Lond., Secretary of; Miss Rigden, Canterbury.

S.—Mr. J. Stott, Haslingden; Mr. Julius Springer, Berlin; Mr. W. T. Storrs, Lond.; St. Mungo's College, Glasgow, Secretary of; Mr. G. B. Stocker, Lond.; Stoke-on-Trent Union, Clerk of; Mr. Noble Smith, Lond.; Scholastic, Clerical, &c., Association, Lond.; Stockport Infirmary, Secretary of; Mr. M. Springer, Wildbad.

T.—Mr. L. A. Tallerman, Lond.; Tallerman Treatment Institute, Lond., Secretary of; Technique Publishing Co., New York; Dr. H. P. Taylor, Mid Yell; Mr. Tarbet, Ledbury; Township of Manchester, Town Clerk of.

V.—Vinolia Co., Lond.

W.—Dr. J. D. Windle, Southall; Dr. J. R. Whitaker, Edinburgh; West Riding Asylum, Wadsley, Secretary of; Messrs. P. W. Wooley and Co., Lond.; Mr. T. Wohlieben, Lond.; Mr. J. Worth, St. Day; Mr. O. Williams, Lond.; Worth's Food Syndicate, Lond.; Mr. W. Woolcombe, Plymouth; Dr. J. Sim Wallace, Kingston-on-Thames; Worcester Amalgamated Friendly Societies Medical Association, Secretary of; Mr. R. T. Williams, Cwm Avon; Messrs. J. Wright and Co., Bristol; Dr. H. Walsham, Lond.; Messrs. Wyckoff, Seaman, and Benedict, Lond.; Dr. C. P. White, Penmaenmawr; Mr. Wm. Wallace, Leicester.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. G. N. Adams, Kenfig Hill; Mrs. Arnison, Newcastle-on-Tyne; A. L.; A. G.; A. F. C.; Aston Hall, Sutton Coldfield, Secretary of.

B.—Dr. J. M. Barbour, Swanage; Bootle Borough Hospital, Secretary of; Mr. H. Bickford, Lond.; Buntingford House Retreat, Secretary of; Dr. J. O. W. Barratt, Wakefield; Lieutenant-Colonel R. H. Browne, I.M.S., Comber, Ireland; B. F.; Dr. C. Burland, Liverpool; Brin's Oxygen Co., Lond.

C.—Mr. E. P. Court, Hambledon; Mr. F. W. J. Coaker, Bromsgrove; C. S. F.; City of Leeds, Accountant of; C. G.; C. W. H.; Dr. J. Cunningham, Wellingborough; City Asylum, Gosforth, Steward of; Chelsea Clinical Society, Hon. Treasurer of; Coppice (The), Nottingham, Secretary of.

D.—Mr. A. K. Dresser, South Hayling; Dundee Royal Infirmary, Treasurer of; Messrs. Davy, Hill and Son, Yates, and Hicks, Lond.; Doctor, Wolverhampton; Messrs. Derry and Sons, Nottingham; Dumfries and Galloway Royal Infirmary, Dumfries, Secretary of; D. W. W.

E.—Mr. H. S. Elworthy, Lond.; Mr. W. K. Evans, Bexley; E. J.; Mr. H. T. Evans, Blackwood; E. H. W.; Etablissement Thermal, Uriage, France; E. M. B.

F.—Dr. G. Faris, Ennis; Mr. B. J. Frampton, Bournemouth; Mr. R. H. Fleming, Glasgow; Mr. J. Fearnley, Goxhill; Mr. D. Fletcher, Tarbert; F. F. H.

G.—Dr. J. T. Grant, Edinburgh; Messrs. Gies, Schacht, and Co., Clifton; G. F. H.; G. R. W.; Gwilym, Walkley; G. A. B.; G. G.

H.—Mr. J. Heywood, Manchester; Mr. C. E. Humphreys, Llanfair; Dr. R. Hamilton, Douglas; Miss K. Hogg, Lond.; Mr. W. A. Hardiker, Priors Marston; Mr. W. Hughes, Waenfawr; Mr. M. Hurly, Castle Island; H. P. G.; H. W.

J.—Dr. G. H. Johnston, Ticehurst; J. H.; J. P. T.; J. R. S.; J. H. B.; J. W. G.; J. C.; J. B. B.

K.—Dr. D. H. Kyle, Glasgow; Dr. L. Kidd, Enniskillen.

L.—Mr. E. H. Loader, Lond.; Messrs Laughland, Mackay, and Co., Lond.; Dr. T. Laird, Heywood; L. F. C.; London-road (22), Twickenham; Mr. T. Llewellyn, Ogmore Vale; Dr. G. H. Lewis, Llanrhian.

M.—Dr. R. S. Moorshead, Bristol; Dr. E. J. Martin, South Kirkby; Medicus, Stockport; Medicus, Leeds; Mr. H. H. Mason, Lond.; Medicus, Margate; Middlesbrough Corporation, Accountant of; Mr. J. J. Moynihan, Stockton-on-Tees; Manchester Ear Hospital, Treasurer of; Mr. W. R. MacFie, Moreton-Hampstead; Mr. J. Marshall, Pontnewydd; Dr. W. Murrell, Lond.; Manchester Medical Agency; Messrs. Minet and Co., Lond.; Messrs. J. Maythorn and Son, Biggleswade.

N.—Messrs. Nicolay and Co., Lond.; Northern Medical Association, Glasgow; Nottingham Children's Hospital, Lady Superintendent of; National Hospital for Diseases of the Heart, Lond., Secretary of; Newark Hospital, Secretary of.

O.—Mr. G. Olliver, Brighton; Mr. M. J. O'Doherty, Middlewich; Dr. F. Orton, Lond.

P.—Mr. F. E. Pearse, Woking; Mr. P. H. Parsons, Edinburgh; Mr. J. R. Prytherch, Tycroes; Plasmon Syndicate, Lond.; Mr. J. Pond, Norwich; Dr. F. W. Pavy, Lond.; Mr. F. W. Provost, Harrow; P. P.

R.—Mr. L. Richmond, Lond.; Dr. W. L. Ross, Turriff; Rio Chemical Co. (St. Louis, U.S.A.), Lond., Manager of; Mr. A. Romney, Dover; Mr. H. M. Riley, Leicester; Rochford Union, Southend-on-Sea, Clerk of; R. J. D.

S.—Mr. E. Simpson, Epperstone; Messrs. Savory and Moore, Lond.; Smedley's Hydro, Matlock; Mr. H. E. Sainsbury, St. Albans; Messrs. R. Sumner and Co., Liverpool; St. John Ambulance Association, Lond.; Dr. E. F. Syrett, Nayland; South Devon, &c., Hospital, Plymouth, House Steward of; Mr. D. L. Spillane, Ballybunion; Surgeon, Islington; Dr. W. Shand, Guisborough; Smith's Advertising Agency, Lond.; Messrs. Stevenson and Comley, Birmingham; Stamford Hill, &c., Dispensary, Secretary of; Messrs. Salamon and Co., Rainham; Mr. L. D. Sterling Maxwell, Canada.

T.—Messrs. R. Tidey and Son, Lond.; T. C. J.; Mr. J. Thin, Edinburgh; Dr. E. F. Trevelyan, Leeds.

V.—Dr. G. R. Vicars, Wood Dalling.

W.—Mr. J. Williamson, Lincoln; Mrs. O. Wainwright, Brentford; Dr. J. A. Wait, Tynemouth; Weston-super-Mare, Hospital, Secretary of; Messrs. W. and F. Walker, Liverpool; West Kent General Hospital, Maidstone, Secretary of; Mr. W. F. A. Walker, Kingsland; Mr. C. Webb, Margate; W. C. R.; W. H.; Western General Dispensary, Lond., Secretary of; Dr. A. C. White, Oldham; Dr. J. H. Waterhouse, Maltby Grange; W. E. S.; W. S. W.; Mr. C. O. Wynne, Llanrwst; Mr. R. M. Wright, Morecambe; W. E. R.

Z.—Z., Bristol.

EVERY FRIDAY.

THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 1	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under £0	5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France.—J. ASTIER, 8, Rue Traversière, Asnières, Paris.